IEI Technology Corp.

MODEL:

WIDS-515A/517A

IEEE 802.11n WLAN compliant Panel PC with Embedded LGA 775 Intel® Pentium® Dual-Core Processor supports Core™2 Duo/Celeron® D Processors and 4.0 GB DDR2 with 15” or 17” Touch Screen and Multiple I/O Interfaces

User Manual

Rev. 1.01 20 November, 2008

RoHS Lead Free

Revision

Date	Version	Changes
20 November, 2008	1.01	Added wireless LAN module in the packing list
4 November, 2008	1.00	Initial release

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Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the WIDS-51XX series or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the WIDS-51XX series. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the WIDS-51XX series. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the WIDS-51XX series. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the WIDS-51XX series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the WIDS-51XX series package.

- 1 x WIDS-51XX flat panel PC
- 1 x Screw kit
- 1 x User Manual and driver CD
- 1 x Panel mounting kit
- 1 x Wall mounting kit
- 1 x Power cord
- 1 x Jumper pack
- 1 x Wireless LAN module

Images of the above items are shown in **Chapter 3** on **page 44**.

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Chapter

1

Introduction

1.1 WIDS-51XX Series Flat Panel PC Overview

Figure 1-1: WIDS-51XX

The WIDS-51XX Panel PC series comprises of two models, the WIDS-515A and WIDS-517A. Both WIDS-51XX models support the high-speed IEEE 802.11n wireless LAN (WLAN) protocol. Each WIDS-51XX comes supports Intel® Core™2 Duo or Intel® Celeron® D processor and supports a maximum front side bus (FSB) of 1066 MHz ensuring fast I/O throughputs from the system to the processor.

The WIDS-51XX wireless capabilities enable integration into a broader wireless network and application in more remote environments where network cables don't exist, are difficult to access or inconvenient. Reduced cabling also reduces downtime risk by eliminating accidental disconnects of a cable from the system or the LAN hub.

1.1.1 Features and Model Variations

There are two models in the WIDS-51XX series, the WIDS-515A and WIDS-517A Both models feature the following:

- Supports Intel® Core™2 Duo or Intel® Celeron® D processor
- 533 MHz, 800 MHz or 1066 MHz FSB
- Supports two 2.0 GB (max.) 667 MHz DDR2 SDRAM DIMM (system max. 4.0 GB)
- Dual gigabit Ethernet (GbE) support

- Invisible WLAN module supports the 802.11n protocol
- Additional PCI expansion slot
- Optional PCIe x4 slot with PCIe x1 expansion support
- Lockable power connector secure the power cable to the system
- Easily accessible external AT or ATX power supply type selection button
- External CMOS reset button for fast system recovery
- One CompactFlash® Type II socket
- IP 65 compliant front panel
- RoHS compliant

1.1.2 Applications

The WIDS-51XX panel PCs are elegant yet sophisticated systems that are easily implemented in commercial environments, industrial environments and corporate environments.

1.2 External Overview

1.2.1 General Description

The stylish WIDS-51XX panel PC has an IP 65 compliant front panel with two waterproof USB ports and an extended wireless LAN (WLAN) antenna. All the I/O interfaces are located on the bottom panel. A CD-ROM drive bay is located on the right side of the system. Three ventilation fans are located on the left. The rear panel provides screw holes for a wall-mounting bracket compliant with VESA FDMI standard.

1.2.2 Front Panel

The front side of the WIDS-51XX systems comprise of an XGA (WIDS-515A) or SXGA (WIDS-517A) screen surrounded by aluminum frame. The top of the front panel has an 802.11n compliant WLAN antenna stretching over the screen. The bottom right corner of the front panel features two waterproof USB ports. The front panel is IP 65 compliant making the WIDS-51XX systems are completely resistant to dust and are protected against water being sprayed on the screen.

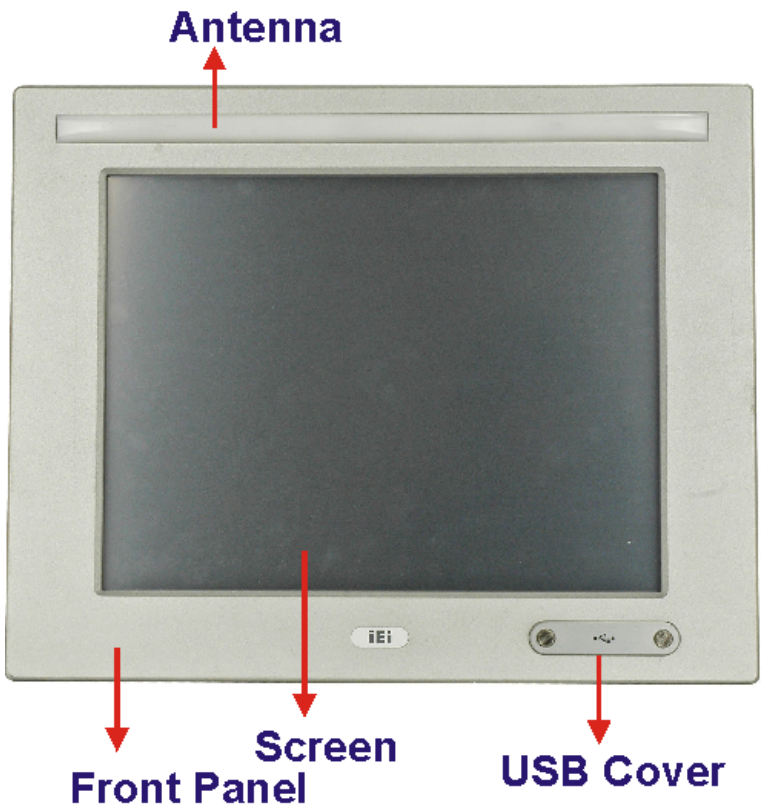


Figure 1-2: WIDS-51XX Front View

1.2.3 Rear Panel

The rear panel provides access to retention screw holes that support the wall mounting. Refer to **Figure 1-3**.

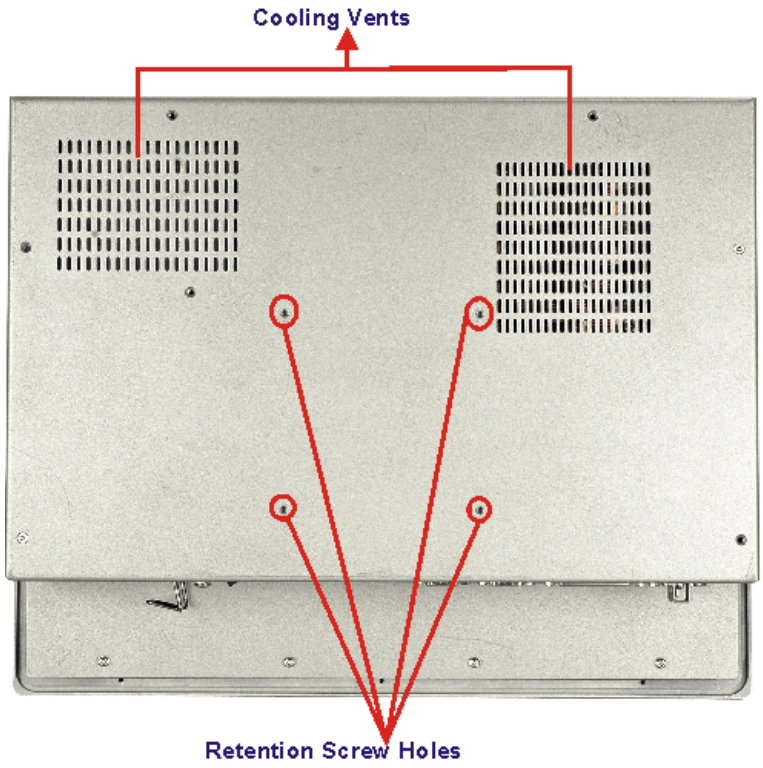


Figure 1-3: WIDS-51XX Rear View

1.2.4 I/O Interface Panel

The I/O interface panel located on the bottom of the WIDS-51XX has the following I/O interface connectors:

- 1 x 24 V DC Out connector
- 1 x 12 V DC In connector
- 1 x CF Type II socket
- 1 x Keyboard connector
- 2 x LAN connectors
- 1 x Line in audio jack
- 1 x Line out audio jack
- 1 x Mic in audio jack
- 1 x Mouse connector
- 1 x Parallel port connector
- 1 x PCI expansion slot

- 4 x RS-232 connectors
- 1 x RS-232/422/485 connector
- 4 x USB 2.0 connectors
- 1 x VGA connector

The external I/O interface connector panel is shown in **Figure 1-4**.

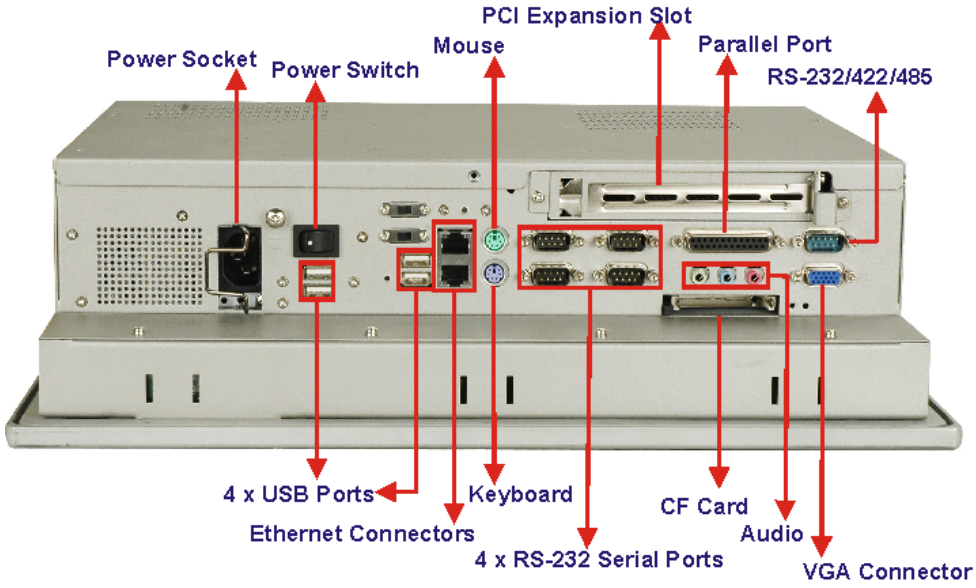


Figure 1-4: WIDS-51XX I/O Interface Connector Panel

1.2.5 Top Panel

The top panel and side panels of WIDS-51XX series provides access to slots that support panel mount and rack mount. The top panel also has an air vent for cooling purposes.

1.2.6 Side Panels

The left panel of the WIDS-51XX panel PC hosts three cooling fans that cool the interior of the system. The right panel also has a CD-ROM drive bay for user installed CD-ROM drive installation. See **Figure 1-5**.

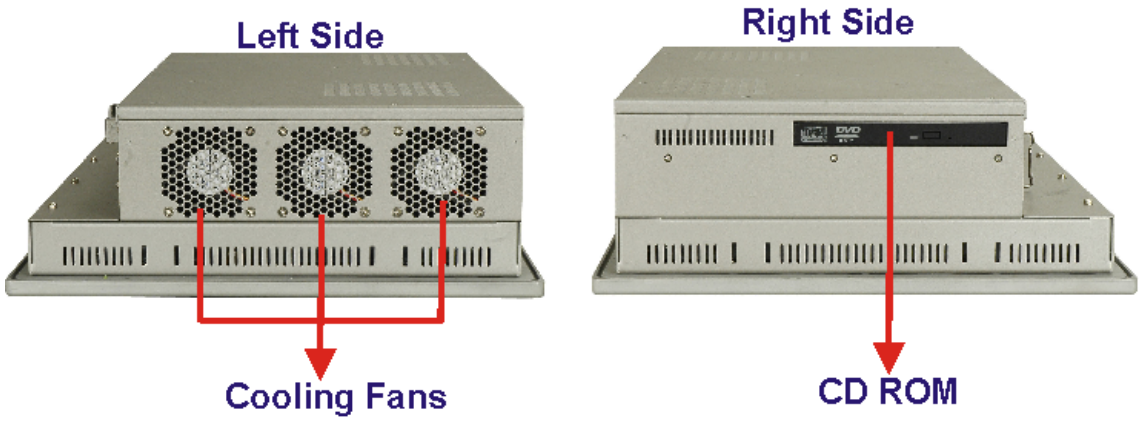


Figure 1-5: WIDS-51XX Side Views

1.3 Internal Overview

The WIDS-51XX has the following components installed internally:

- 1 x Motherboard
- 1 x 1.0 GB DDR2 SDRAM DIMM
- 1 x HDD drive bracket
- 1 x Power supply
- 3 x Cooling fans
- 1 x PCI riser card
- 1 x CD ROM drive bracket

1.4 Specifications

1.4.1 Preinstalled Hardware Components

The WIDS-51XX series flat panel PC has the following preinstalled components:

- 1 x Motherboard
- 1 x LCD screen
- 1 x Touch screen
- 1 x Inverter
- 1 x DDR memory module

The technical specifications for some of these components and the system are shown in the sections below.

1.4.2 System Specifications

The technical specifications for the WIDS-51XX series systems are listed in Table 1-1.

		WIDS-515A/9455	WIDS-517A/9455
LCD Specs.	Resolution	102x x 768 (XGA)	1280- x 1024 (SXGA)
	Brightness	350 cd/m^2	300 cd/m^2
	Contrast Ratio	700:1	800:1
	Viewing Angle (H-W)	140/125	140/140
	Backlight MTBF	50,000 hours	50,000 hours
CPU		LGA 775 Intel® Core™2 Duo or Intel® Celeron® D	
Front Side Bus		533 MHz, 800 MHz or 1066 MHz	
Northbridge Chipset		Intel® 945G	
Southbridge Chipset		Intel® ICH7R	
Memory		Two 2.0 GB 667 MHz DDR2 SDRAM DIMM (system max. 4.0 GB)	
VGA		Intel® 945G supports dual display	
Solid State Drive (SSD)		One CompactFlash® Type II socket	
Drive Bay		One 2.5” 3.0 Gb/s SATA II anti-shock drive bay	
		One slim type CD-ROM bay	
Ethernet		Two PCIe GbE controllers	
Audio		RealTek ALC883 HD audio codec	

	WIDS-515A/9455	WIDS-517A/9455
I/O ports	1 x RS-232/422/485 4 x RS-232 6 x USB 2.0 (two on front panel are waterproof) 2 x PS/2 for keyboard and mouse 1 x Parallel port connector 1 x VGA-out connector 2 x LAN connectors 3 x Audio connectors (line-in, line-out and mic-in) 1 x CMOS reset button 1 x AT/ATX switch 1 x USB switch	
Expansion Slots	One PCI	
	One Mini-PCIe (for wireless module)	
	One PCIe x4 with PCIe x1 signal (optional)	
Touch Screen	Resistive Type 5-wire (touch controller IC is on board)	
Operating Temperature	0ºC ~ 50ºC	
Storage Temperature	-20ºC ~ 60ºC	
Vibration	-5 Hz ~ 17 Hz 0.1” double amplitude displacement	
	16 Hz ~ 640 Hz 1.5G acceleration peak-to-peak	
Shock	10G acceleration peak-to-peak (11 ms)	
Relative Humidity	4% ~ 95% @ 60ºC, non-condensing	
Net/Gross Weight	7 kg/11 kg	8 kg/12 kg
Dimensions (W x H x D)	410 x 329 x 124.5	451.98 x 375.96 x 123

		WIDS-515A/9455	WIDS-517A/9455
Power Supply	**ATX**	ACE-A618A-RS	ACE-A622A-RS
	AT	ACE-4520C-RS	
Front Panel Protections		IP 65 compliant	
Certification		Complies with CE and FCC	

Table 1-1: WIDS-51XX Series System Specifications

1.4.3 Power Supply Specifications

1.4.3.1 ACE-A618A-RS Specifications

Parameter	**ACE-A618A-RS**			
AC Input	ATX AC input			
Power Supply	180W			
Input	90 VAC ~ 264 VAC @ 50 Hz/60 Hz			
Output (max)	3.3 V	5 V	12 V	-12 V
	14 A	16 A	14 A	0.5 A

1.4.3.2 ACE-A622A-RS Specifications

Parameter	**ACE-A618A-RS**			
AC Input	ATX AC input			
Power Supply	220W			
Input	90 VAC ~ 264 VAC @ 50 Hz/60 Hz			
Output (max)	3.3 V	5 V	12 V	-12 V
	14 A	16 A	10 A	0.8 A

1.4.3.3 ACE-4520C-RS Specifications

Parameter	ACE-A618A-RS			
Input	ATX DC input			
Power Supply	200 W			
Input	24 VDC @ 50 Hz/60 Hz			
Output (max)	3.3 V	5 V	12 V	-12 V
	12 A	12 A	15.4 A	0.5 A

Chapter

2

Detailed Specifications

2.1 Dimensions

The following sections provide detailed schematics and information on the dimensions of the WIDS-51XX.

2.1.1 WIDS-515A Dimensions

2.1.1.1 WIDS-515A Front Panel Dimensions

WIDS-517A front panel dimensions are shown in **Figure 2-4** and listed below.

- **Width**: 410 mm
- **Height**: 329 mm

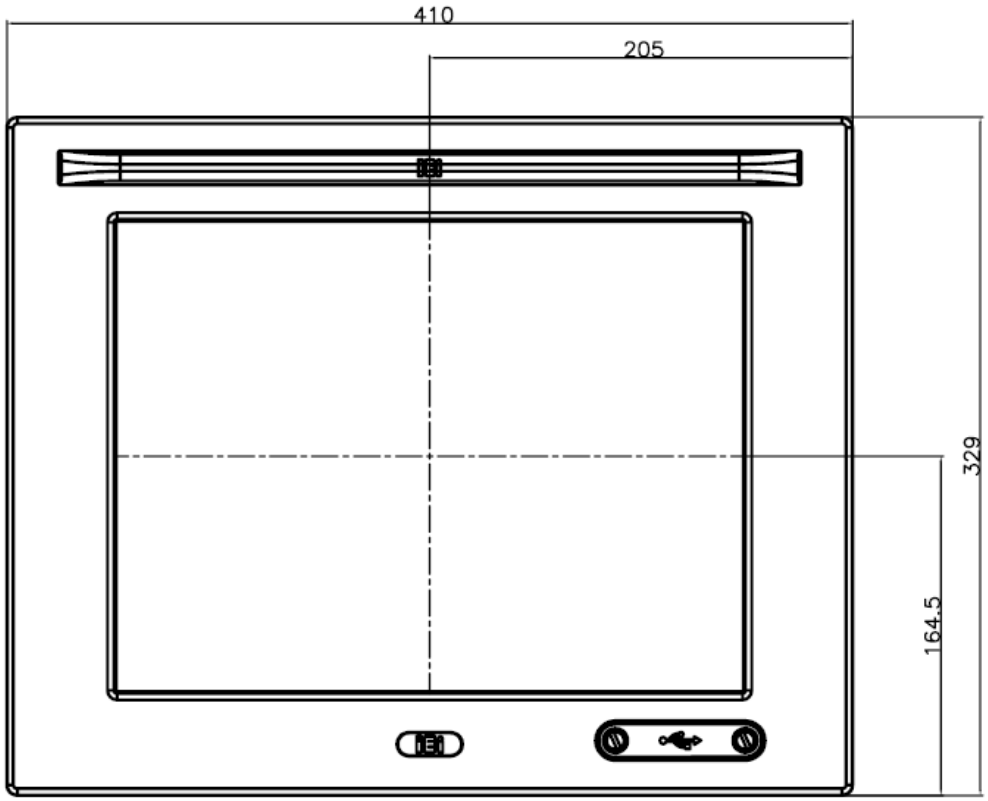


Figure 2-1: WIDS-515A Front Panel Dimensions (mm)

2.1.1.2 WIDS-515A Side Dimensions

WIDS-515A side panel dimensions are shown in Figure 2-5.

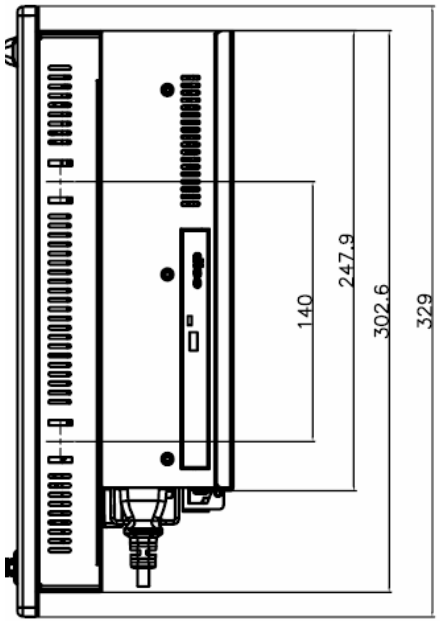


Figure 2-2: WIDS-517A Side Panel Dimensions (mm

2.1.1.3 WIDS-515A Top and Bottom Panel Dimensions

WIDS-515A top and bottom panel dimensions are shown in Figure 2-6.

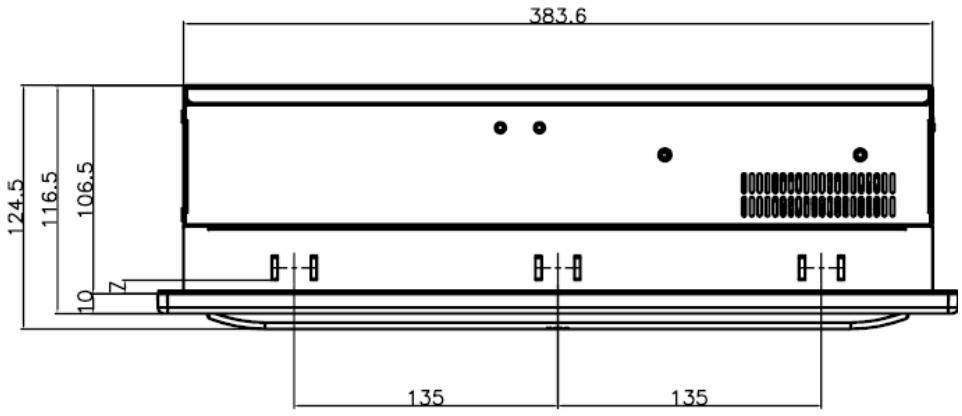


Figure 2-3: WIDS-515A Top and Bottom Panel Dimensions (mm)

2.1.2 WIDS-517A Dimensions

2.1.2.1 WIDS-517A Front Panel Dimensions

WIDS-517A front panel dimensions are shown in **Figure 2-4** and listed below.

- **Width**: 451.98 mm
- **Height**: 375.96 mm

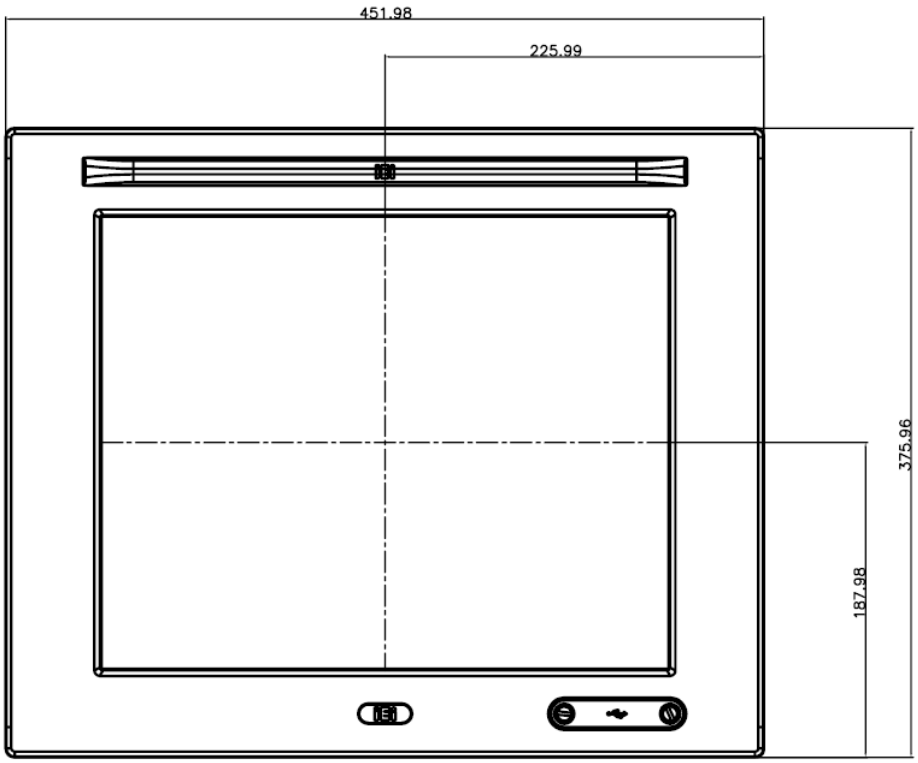


Figure 2-4: WIDS-517A Front Panel Dimensions (mm)

2.1.2.2 WIDS-517A Side Dimensions

WIDS-517A side panel dimensions are shown in Figure 2-5.

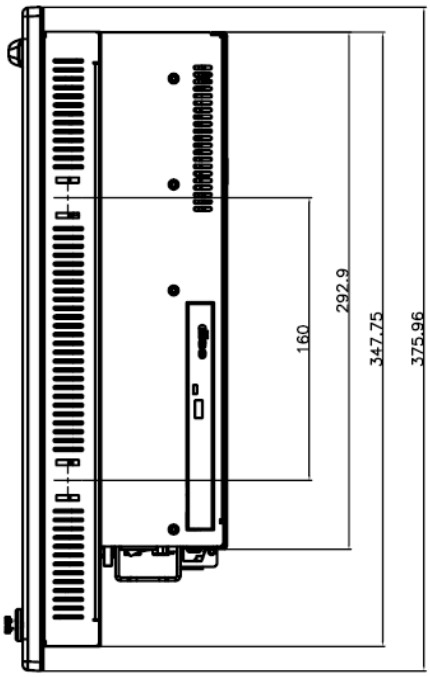


Figure 2-5: WIDS-517A Side Panel Dimensions (mm

2.1.2.3 WIDS-517A Top and Bottom Panel Dimensions

WIDS-517A top and bottom panel dimensions are shown in Figure 2-6.

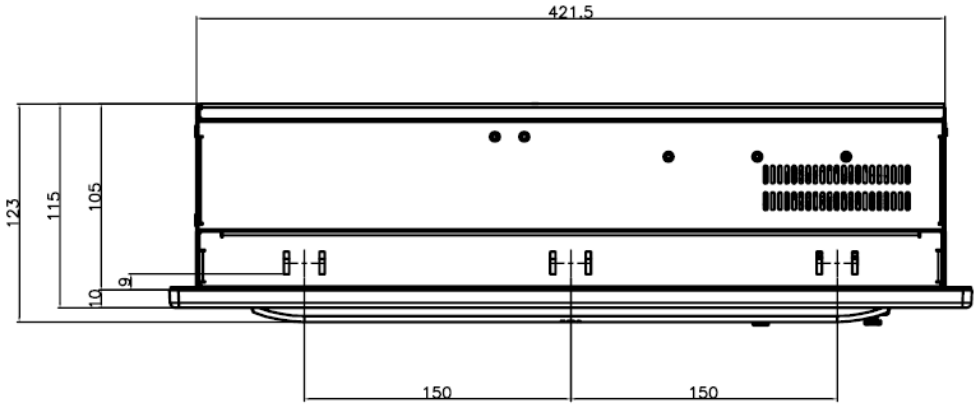


Figure 2-6: WIDS-517A Top and Bottom Panel Dimensions (mm)

2.2 POS-9455 Motherboard

2.2.1 POS-9455 Overview

The WIDS-51XX has an IEI POS-9455 motherboard installed in the system. The POS-9455 is an Intel® LGA 775 processor platform and supports Intel® Pentium® D, Intel® Celeron® D and Intel® Core™2 Duo processors. The processors are interfaced to an Intel® 945G graphics and memory controller hub (GMCH) through a 533 MHz, 800 MHz or 1066 MHz FSB. The Intel® 945G is itself connected to an Intel® ICH7 I/O controller hub (ICH) through the Direct Media Interface (DMI) bus.

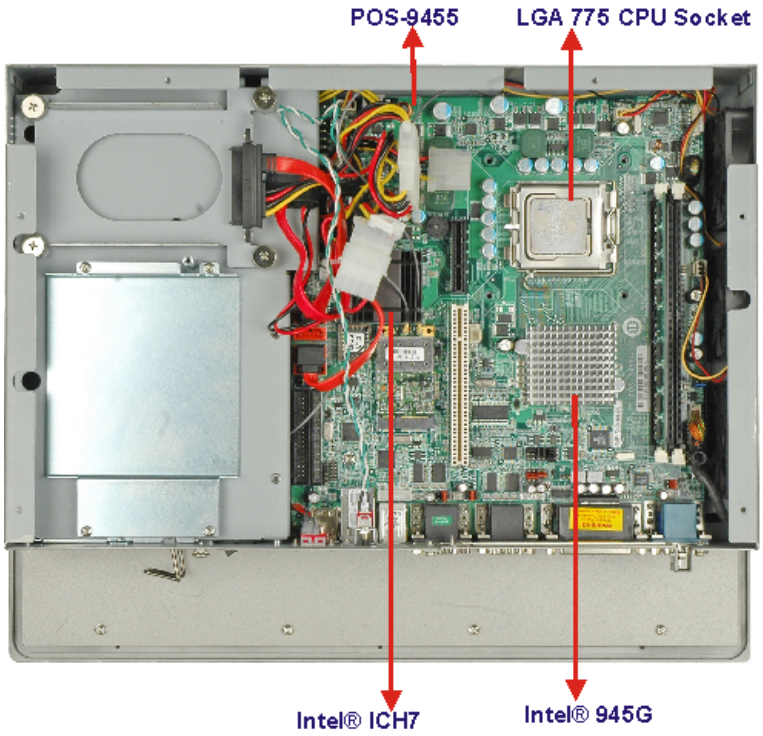


Figure 2-7: POS-9455

2.2.2 Intel® 945 GMCH Overview

The Intel® 945 GMCH is connected to two 240-pin DIMM sockets on the POS-9455 and can support up to 4.0 GB of DDR2 SDRAM.

The Intel® 945 GMCH SDVO (Serial Digital Video Out) port is interfaced to a Chrontel CH7308B SDVO-to-LVDS transmitter. The transmitter is then connected to the front

screen through an onboard LVDS connector. The DB-15 CRT connector on the bottom panel is also directly interfaced to the Intel® 945 GMCH through the VGA bus.

2.2.3 Intel® ICH7 Overview

The Intel® ICH7 is connected to the Intel® 945 through the DMI interface. Some of the features of the Intel® ICH7 implemented on the POS-9455 and in the WIDS-51XX are listed below:

- **Audio controller**: The AC'97 compliant audio controller on the Intel® ICH7 is connected to a RealTek ALC655 AC'97 audio codec on the POS-9455 which is in turn connected to the three audio jacks on the bottom panel.

- **USB controller**: The Intel® ICH7 supports up to eight USB 1.1 or USB 2.0 devices. Six of the Intel® ICH7 ports are implemented on the WIDS-51XX system. The four USB connectors on the rear panel and two waterproof USB connectors on the front panel are all interfaced directly to the Intel® ICH7 USB controllers.

- **PCIe GbE Connectors**: Two of the Intel® ICH7 PCIe x1 ports are connected directly to two Broadcom BCM5797 PCIe GbE controllers. These controllers are then connected directly to two external RJ-45 connectors.

- **IDE bus**: The IDE bus on the Intel® ICH7 is connected to the CompactFlash® Type II socket on the I/O panel on the WIDS-51XX system.

- **SATA Drive**: The Intel® ICH7 can support up to four 1.5 GBs SATA drives. These four SATA ports are interfaced to four SATA connectors on the POS-9455. One of these ports can be connected to a user installed SATA drive on the WIDS-51XX system.

- **LPC Bus**: The low pin count (LPC) bus on the Intel® ICH7 connects the Intel® ICH7 directly to the following three chipsets:
  - BIOS Chipset
  - Super I/O chipset
  - Serial port chipset

- **PCI Bus**: The Intel® ICH7 PCI bus supports up to six PCI bus masters. One of these PCI bus masters is connected to a PCI slot on the POS-9455. A PCI riser card is preinstalled in the PCI slot in the WIDS-51XX to enable system expansion. The Intel® ICH7 PCI interface support PCI Local Bus Specifications, Rev. 2.3, at 33 MHz.

- **PCIe Expansion**: One Intel® ICH7 PCIe x1 lane is interfaced directly to a PCIe x4 expansion slot on the POS-9455 enabling system expansion with PCIe x1 cards.

- **Mini-PCIe connector**: One Intel® ICH7 PCIe x1 lane is interfaced directly to a mini-PCIe connector on the POS-9455. An 802.11n compliant WLAN module is preinstalled in the slot in the WIDS-51XX system.

- **BIOS Chipset**: The BIOS chipset has a licensed copy of AMI BIOS preinstalled. The BIOS can be accessed during the POST procedure during the system boot.

- **Serial Port Connectivity**: Two RS-232 ports from the Super I/O chipset and two RS-232 ports from the serial port chipset are interfaced to four DB-9 connectors on the bottom panel. An additional RS-232/422/485 serial port is interfaced from the serial port chipset on the LPC bus to a DB-9 connector on the I/O panel.

- **Touch Screen**: A sixth serial port is used for the touch screen function on the WIDS-51XX system.

- **Other I/O connectors**: The following connectors are also interfaced to the Intel® ICH7 through the super I/O chipset.
  - DB-26 parallel port connector
  - PS/2 keyboard mouse connector
  - PS/2 mouse connector

2.3 Processor Support

2.3.1 Overview

All WIDS-51XX systems are shipped with a standard E2160 Intel® Pentium® Dual-Core processor. However, all WIDS-51XX systems also support Intel® Core™2 Duo and Intel® Celeron® D processors with a maximum FSB speed of 1066 MHz.

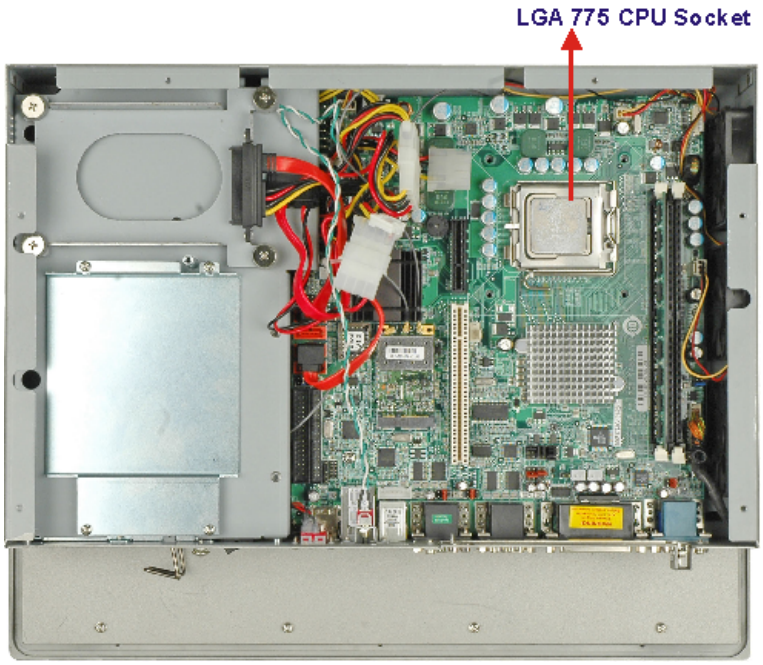


Figure 2-8: LGA 775 CPU Socket

2.3.2 Standard Model: Intel® Pentium® Dual-Core

Standard WIDS-51XX models are shipped with a preinstalled 1.8 GHz 65 nm E2160 Intel® Pentium® Dual-Core processor. This dual core processor supports an 800 MHz FSB, Intel® SpeedStep® Technology, the Execute Bit Disable function and Intel® 64 architecture. Specifications are listed below.

- **Pentium® Dual-Core Model**: E2160
- **Clock Speed**: 1.8 GHz
- **FSB**: 800 MHz
- **Architecture**: 65 nm
- **L2 Cache**: 1.0 MB

- **Supported Features**:
  - Intel® SpeedStep® Technology
  - Execute Bit Disable
  - Intel® 64 architecture

2.3.3 Customized Model: Intel® Core™2 Duo

The Intel® Core™2 Duo processors are customized options and must be ordered separately. Some of the features of the Core™2 Duo processor are listed below.

- **FSB**: 1066 MHz
- **Architecture**: 45 nm
- **L2 Cache**: 6.0 MB
- **Supported Features**:
  - Intel® Advanced Smart Cache
  - Intel® Intelligent Power Capability
  - Intel® HD Boost
  - Intel® Deep Power Down Technology
  - Intel® Wide Dynamic Execution
  - Intel® Smart Memory Access
  - Intel® Smart Memory Access

2.3.4 Customized Model: Intel® Celeron® D

The Intel® Celeron® D processors are customized options and must be ordered separately. Some of the features of the Celeron® D processor are listed below.

- **Clock Speed**: Up to 3.60 GHz (650 nm) or 3.20 GHz (90 nm)
- **FSB**: 533 MHz
- **Architecture**: 65 nm or 90 nm
- **L2 Cache**: 512 KB (65 nm) or 256 KB (90 nm)
- **Supported Features**:
  - Execute Bit Disable
  - Intel® 64 architecture

2.4 Memory Modules

2.4.1 Installed Memory

One 240-pin 1.0 GB DDR2 SDRAM DIMM is installed in the WIDS-51XX and controlled by the Intel® 945G GMCH installed on the internal motherboard.

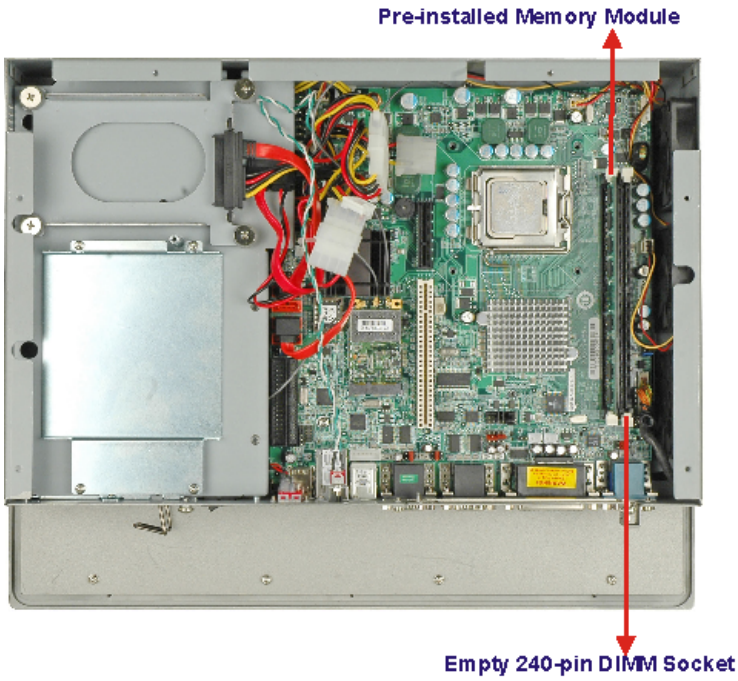


Figure 2-9: Memory Sockets

2.4.2 Additional Memory

The Intel® 945G is capable of supporting two 240-pin 2.0 GB (max.) 667 MHz, 533 MHz or 400 MHz DDR2 SDRAM DIMM (system max. 4.0 GB). If additional memory is required, please contact an IEI sales representative and discuss the necessary system requirement. The Intel® 945G memory controller supports modules with the following specifications:

- Maximum memory size or 4.0 GB
- Directly supports one or two channels of memory where each channel has 64 data lines

- The memory channels are asymmetric: "Stacked" channels are assigned addresses serially. Channel B addresses are assigned after all Channel A addresses.
- The memory channels are interleaved: Addresses are ping-ponged between the channels after each cache line (64-B boundary).
- Supports 400 MHz, 533 MHz and 667 MHz DDR2 DIMM
- 5.3 GB/s available bandwidth for 667 MHz DDR2 in single-channel mode or dual-channel asymmetric mode
- 10.7 GB/s available bandwidth for 667 MHz DDR2 in dual-channel Interleaved mode.
- Supports 256-Mb, 512-Mb, and 1-Gb DDR2 technologies for x8 and x16 devices.
- Supports four banks for all DDR2 devices up to 512-Mbit density. Supports eight banks for 1-Gbit DDR2 devices
- Only supports unbuffered DIMMs.

2.4.3 Storage

The WIDS-51XX comes has a single SATA drive bay. A 150 GB/s SATA drive can be installed in the drive bay.

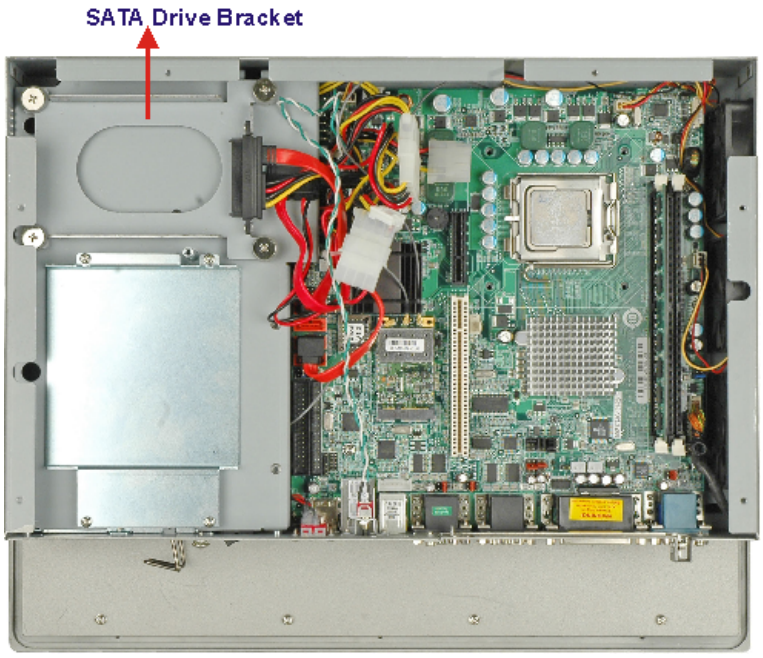


Figure 2-10: SATA Drive Bay

2.5 External Peripheral Interface Connectors

The following section describes the external peripheral interface connectors on the rear panel of the subsystem.

2.5.1 Audio Jacks

2.5.1.1 Overview

The three audio jacks on the bottom panel of the WIDS-51XX are interfaced through a RealTek ALC655 audio codec to the AC'97 v2.3 compliant audio controller on the ICH7 chipset. The RealTek ALC655 is a 16-bit, full-duplex AC'97 Rev. 2.3 compatible six-channel audio codec.

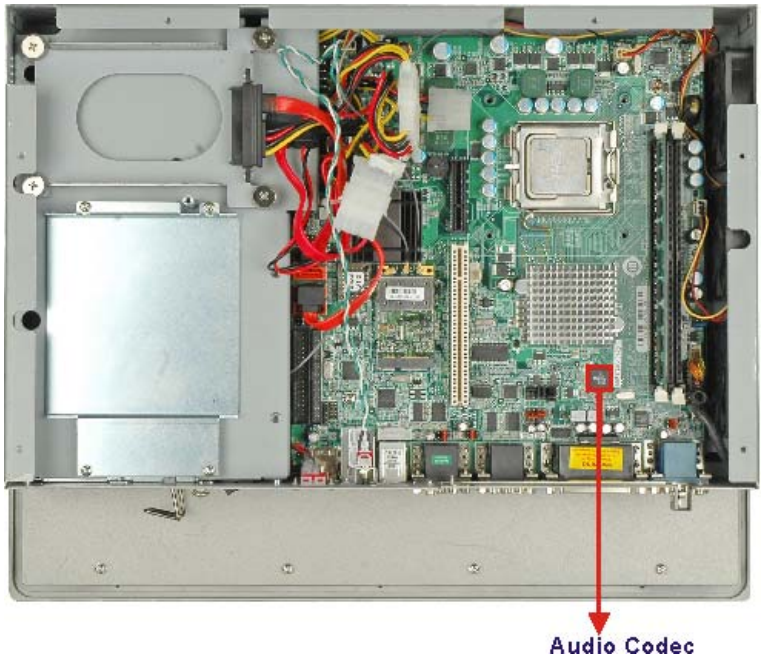


Figure 2-11: AC'97 Codec

The three audio jacks support the following:

- Line-in
- Line-out
- Mic-in

The audio connectors are shown below.

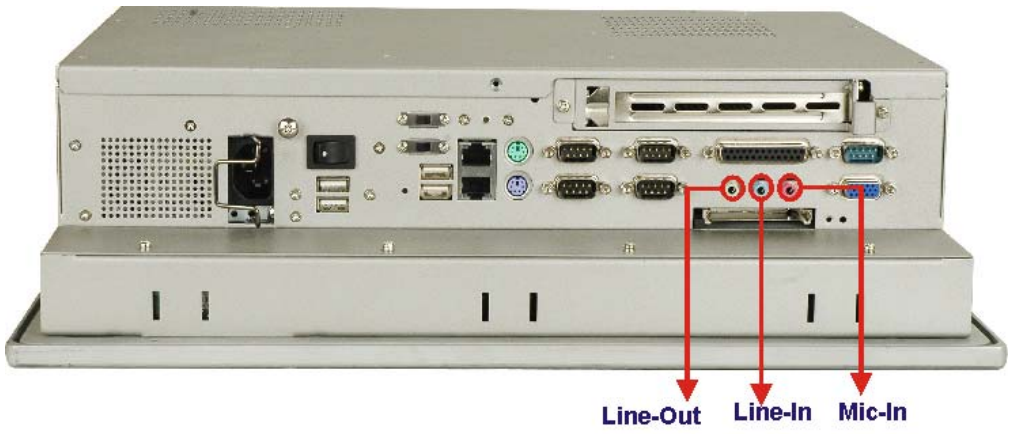


Figure 2-12: Audio Jacks

2.5.1.2 Audio Codec Features

Some of the features of the RealTek ALC655 are listed below:

- Meets performance requirements for audio on PC99/2001 systems
- Meets Microsoft WHQL/WLP 2.0 audio requirements
- 16-bit Stereo full-duplex CODEC with 48KHz sampling rate
- Compliant with AC'97 Rev 2.3 specifications
  - Front-Out, Surround-Out, MIC-In and LINE-In Jack Sensing
  - 14.318MHz -> 24.576MHz PLL to eliminate crystal
  - 12.288MHz BITCLK input
  - Integrated PCBEEP generator to save buzzer
  - Interrupt capability
- Three analog line-level stereo inputs with 5-bit volume control, LINE_IN, CD, AUX
- High-quality differential CD input
- Two analog line-level mono inputs: PCBEEP, PHONE-IN
- Two software selectable MIC inputs
- Dedicated Front-MIC input for front panel applications (software selectable)
- Boost preamplifier for MIC input
- LINE input shared with surround output; MIC input shared with Center and LFE output
- Built-in 50mW/20ohm amplifier for both Front-out and Surround-Out
- External Amplifier Power Down (EAPD) capability
- Power management and enhanced power saving features
- Supports Power-Off CD function
- Adjustable VREFOUT control
- Supports 48KHz S/PDIF output, complying with AC'97 Rev 2.3 specifications
- Supports 32K/44.1K/48KHz S/PDIF input
- Power support: Digital: 3.3V; Analog: 3.3V/5V
- Standard 48-pin LQFP package
- EAX™ 1.0 & 2.0 compatible
- Direct Sound 3D™ compatible
- A3D™ compatible
- I3DL2 compatible

- HRTF 3D positional audio
- 10-band software equalizer

2.5.2 VGA Connector

The Intel® 945G has the Intel® GMA 950 integrated into the Intel® 945G chipset and interfaced to an external DB-15 VGA connector. The Intel® GMA 950 is a 400 MHz 256-bit graphics core and supports up to 10.6 GBps memory bandwidth with 667 MHz DDR2 system memory. The DB-15 VGA connector is shown below.

Figure 2-13: VGA Connector

2.5.3 Serial Port Connectors

The WIDS-51XX has five serial ports. Four of these ports (COM1, COM2, COM3 and COM4) are RS-232 only ports. The COM5 serial port can be configured as a RS-232, RS-422 or an RS-485 serial port. All the COM ports are interfaced through external DB-9 interfaces on the bottom panel as shown below.

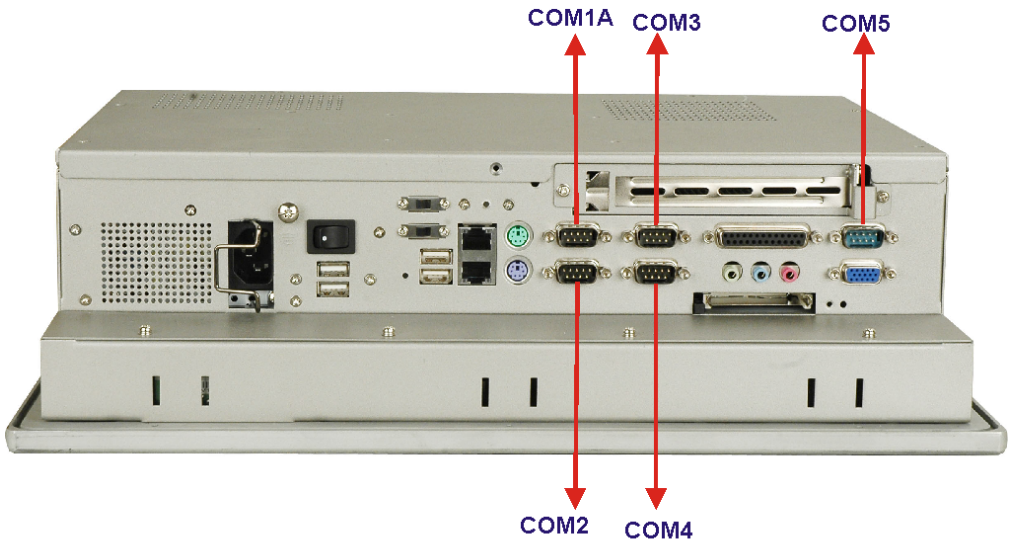


Figure 2-14: External COM Ports

Two of the serial ports (COM1 and COM2) are interfaced to the ITE IT8712F super I/O, through the low pin count (LPC) bus to the ICH7 Southbridge. The remaining three serial ports (COM3, COM4 and COM5) are connected to the ICH7 LPC bus through a Fintek F81216DG serial port controller.

2.5.4 LAN Connectivity

Two of the PCI Express (PCIe x1) lanes from the ICH7 Southbridge are interfaced to a Broadcom BCM5797 PCIe gigabit Ethernet (GbE) controller. The BCM5797 controllers are then interfaced directly to the two RJ-45 connectors on the rear panel and provide external PCIe GbE connectivity.

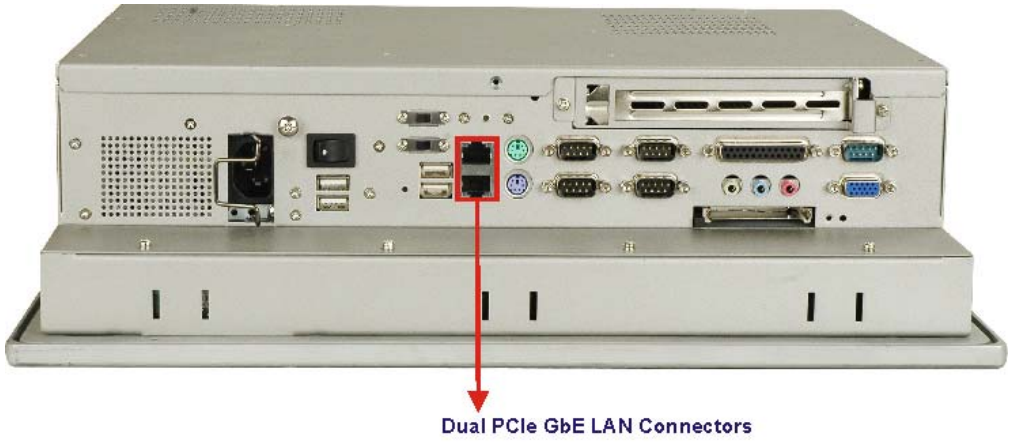


Figure 2-15: RJ-45 Ethernet Connector

The Broadcom BCM5787M PCIe GbE controller is a 10/100/1000BASE-T Ethernet LAN controller. The BCM5787M combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, a PCIe bus interface, and an on-chip buffer memory.

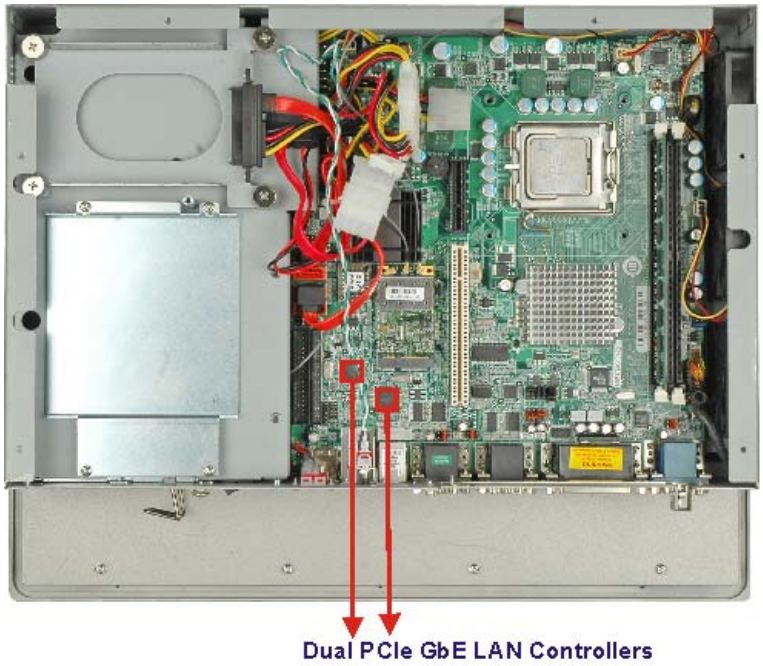


Figure 2-16: LAN Controllers

Some of the BCM5787 controller features are listed below:

- Integrated 10/100/1000BASE-T transceiver
- Automatic MDI crossover function
- PCIe v1.0a
- 10/100/1000BASE-T full/half-duplex MAC
- Wake on LAN support meeting the ACPI requirements
- Statistics for SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (802.3z, clause 30)
- Serial EEPROM or serial flash support

2.5.5 External USB Connectors

The WIDS-51XX has six USB 2.0 ports available. Four USB 2.0 connectors on the rear panel of the WIDS-51XX are interfaced directly to the USB controllers on the ICH7 Southbridge. Two additional waterproof USB 2.0 ports on the front of the WIDS-51XX provide additional and more convenient external connectivity to external USB devices. All six connectors are fully compliant with USB specification Revision 2.0 and USB specification Revision 1.1 and can be interfaced to both USB 1.1 and USB 2.0 compliant devices. The I/O interface panel USB ports are shown below.

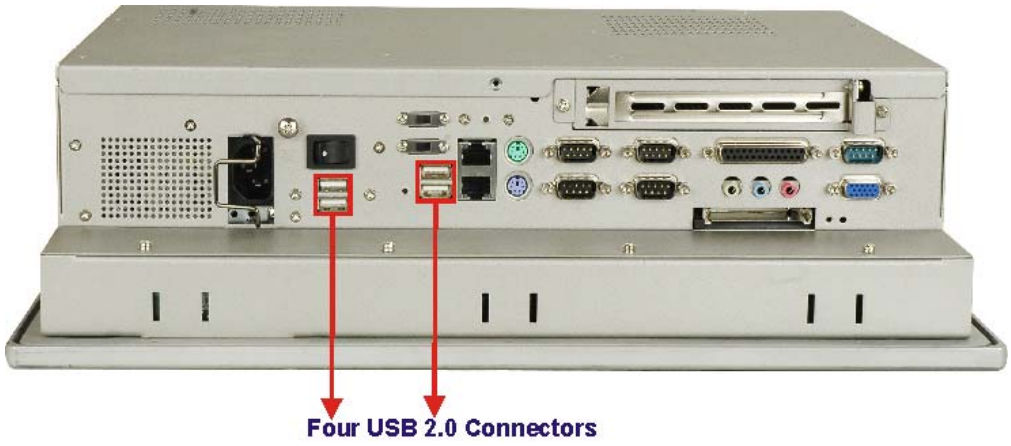


Figure 2-17: External USB Ports

The front panel waterproof USB ports or shown below.

Figure 2-18: Waterproof USB ports

2.5.6 Parallel Port

A single DB-26 parallel port connector on the bottom panel of the WIDS-51XX is interfaced through the ITE IT8712F super I/O chipset to the ICH7 Southbridge.

Figure 2-19: Parallel Port Connector

The IEEE 1284 parallel port on the ITE IT8712F has the following specifications:

- Standard mode support: - Bi-directional and SPP compliant
- Enhanced mode support: - EPP v 1.7 and v1.9 compliant
- High speed mode support: - ECP, IEEE 1284 compliant
- Back drive current protection
- Printer power-on damage reduction
- Supports POST (Power-On Self Test) data port.

2.5.7 Keyboard and Mouse Connectivity

Two PS/2 connectors on the rear panel interfaces to an ITE IT8712F super I/O chipset on the motherboard that connects through the LPC bus to the ICH7 chipset. The PS/2 connectors provide connectivity to PS/2 mouse and keyboards.

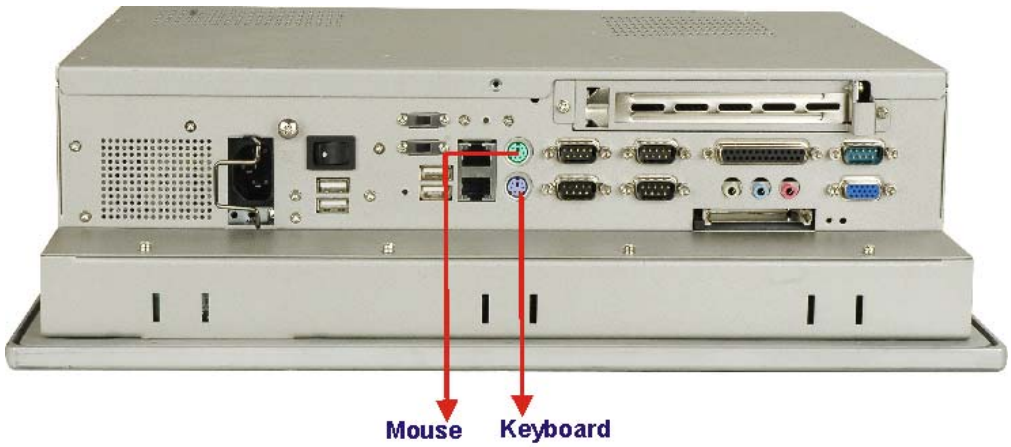


Figure 2-20: Keyboard and Mouse Connector

2.5.8 CF Card Slot

A single CF Type II card slot on the I/O interface panel ensures the easy installation and removal of CF cards from the system. The CF card is interfaced directly to the Intel® ICH7 through the IDE bus.

Figure 2-21: CF Card Slot

2.5.9 Expansion Slot

An expansion slot on the I/O interface panel can host a PCI or PCIe expansion card. A preinstalled PCI riser card on the POS-9455 facilitates the easy installation of a PCI expansion card.

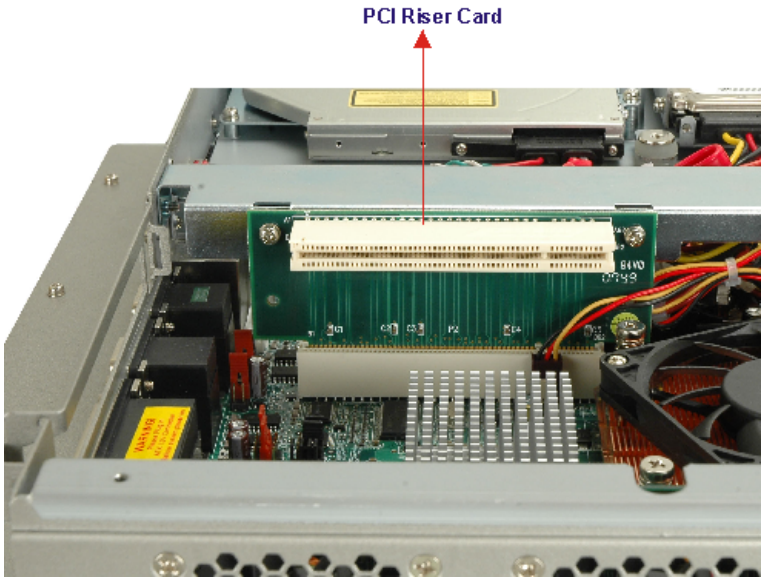


Figure 2-22: PCI Riser Card

If the PCI riser card is removed, a PCIe riser card can also be installed into the PCIe x4 slot on the POS-9455 and a PCIe expansion card installed in the system.

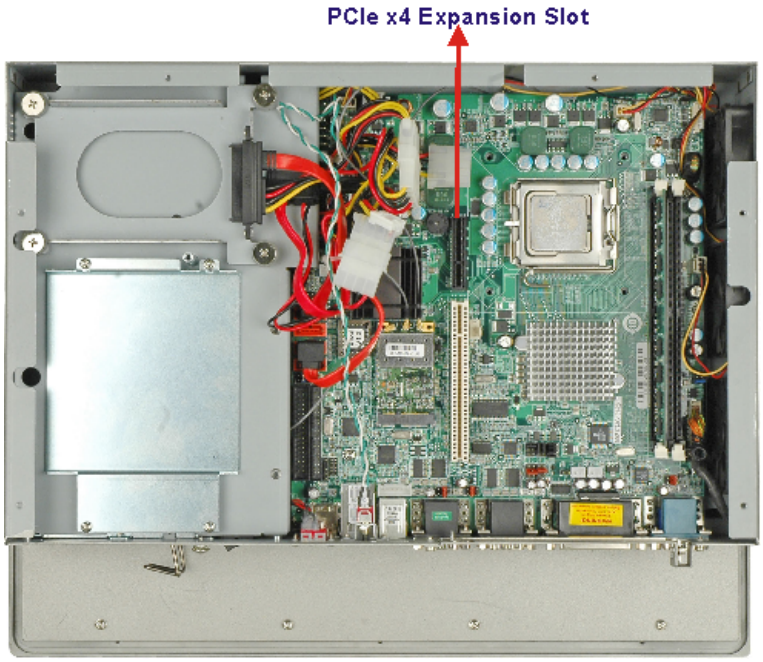


Figure 2-23: PCIe x4 Slot for PCIe x1 Signals

If a PCI or PCIe expansion card is used in the system, the external interface of the card can be mounted and secured to the Expansion Slot on the I/O interface panel.

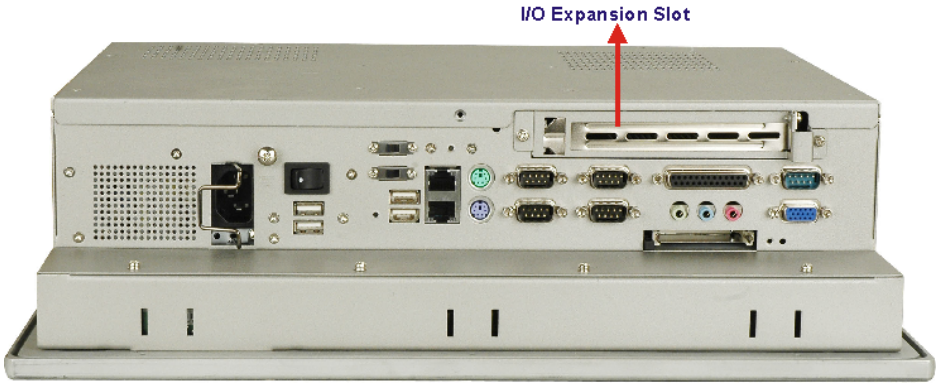


Figure 2-24: Expansion Slot

2.6 WIDS-51XX Monitors

2.6.1 Monitors

The WIDS-515A flat panel PC has a 15” LCD screen with an XGA resolution of 1024 x 768 pixels. The front side screens are interfaced to the Intel® 945GME through a Chrontel CH7308B SDVO-to-LVDS transmitter.

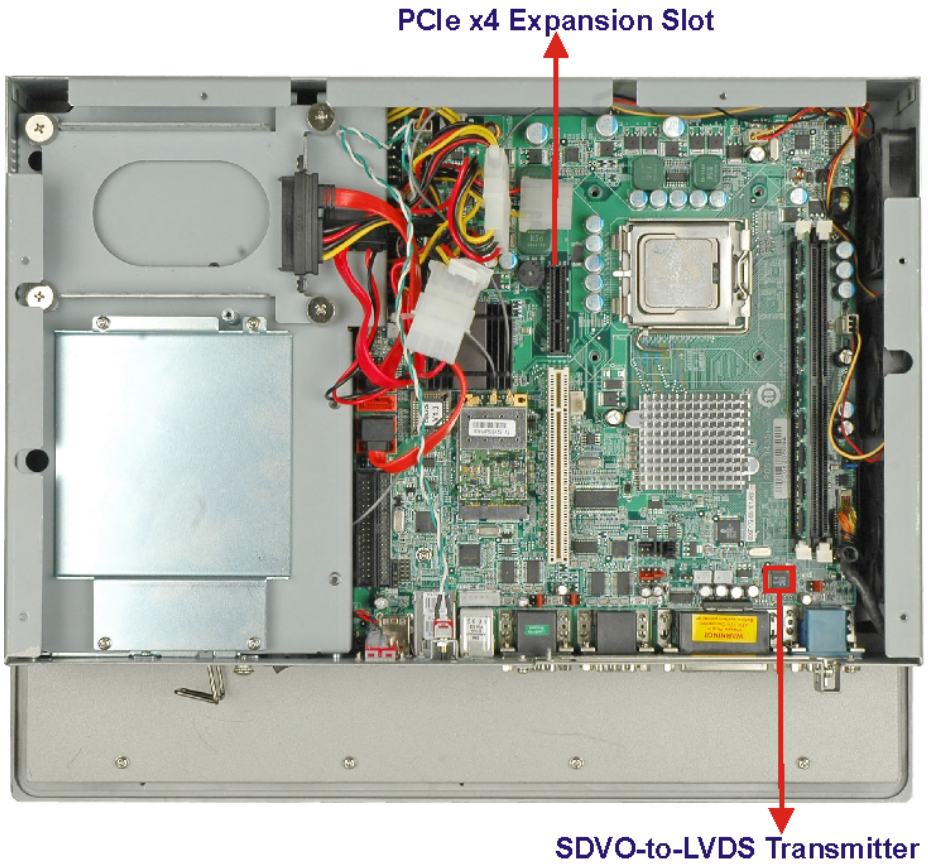


Figure 2-25: SDVO-to-LVDS Transmitter

The WIDS-517A flat panel PC has a 17” LCD screen with an SXGA resolution of 1280 x 1024 pixels.

Figure 2-26: Screen

2.6.2 Touch-Screen Module

A controller for the 5-wire resistive touch screen is installed on the motherboard. The sensitive touch screen is accurate, reliable and durable.

2.6.3 Dual-Display

The system supports dual display capabilities. An additional monitor can be connected to the WIDS-51XX through the VGA connector described earlier.

Figure 2-27: VGA Connector

2.7 System Power

2.7.1 Power Mode

The system can be run in the AT power mode or the ATX power mode. Both these power modes are described below. The system power mode is specified using a switch on the bottom I/O panel. See the figure below.

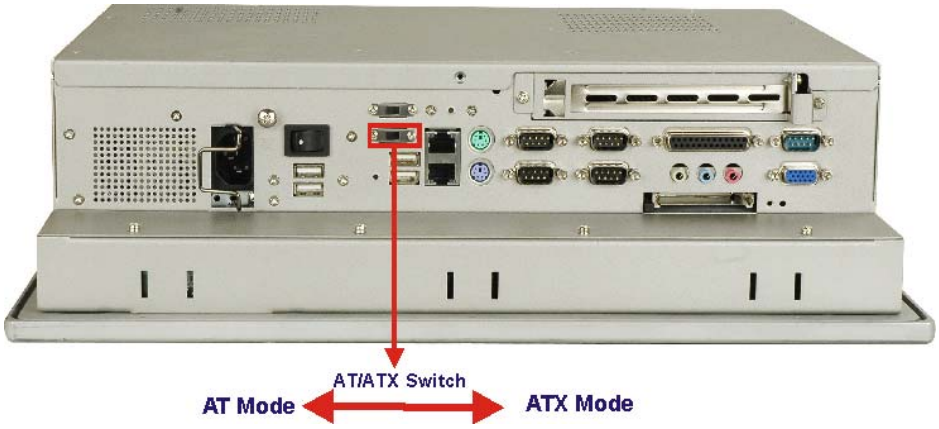


Figure 2-28: Power Mode Select Switch

2.7.1.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The WIDS-51XX panel PC turns on automatically when the power is

connected. The AT mode benefits a production line to control multiple panel PCs from a central management center and other applications including:

- ATM
- Self-service kiosk
- Plant environment monitoring system
- Factory automation platform
- Manufacturing shop flow

2.7.1.2 ATX Power Mode

With the ATX mode selected, the WIDS-51XX panel PC goes in a standby mode when it is turned off. The panel PC can be easily turned on via network or a power switch in standby mode. Remote power control is perfect for advertising applications since the broadcasting time for each panel PC can be set individually and controlled remotely. Other possible application includes

- Security surveillance
- Point-of-Sale (POS)
- Advertising terminal

2.7.2 Power Supplies

Each system will come with either an AC or DC power supply. The AC power supplies for the 15” WIDS-515A and 17” WIDS-517A are different. However, the DC power supply for both systems is the same.

2.7.2.1 AC Power Supply Units

The AC power supply units are described below:

- **WIDS-515A AC power supply**: The 1U 180 W ACE-A618A AC power supply supports voltages between 90 VAC and 264 VAC.
- **WIDS-517A AC power supply**: The 1U 220 W ACE-A622A AC power supply supports voltages between 90 VAC and 264 VAC.

2.7.2.2 DC Power Supply Units

The DC power supply unit available for both systems is described below:

- **WIDS-515A AC power supply**: The 1U 200 W ACE-A4520C DC power supply supports voltages between 90 VAC and 264 VAC.

2.7.3 Power Connectors

There is a single power connector on the rear panel interface panel. The connector is shown in Figure 2-29 below.

Figure 2-29: Power Connectors

2.7.4 Power Switch

An easily accessible On/Off switch is located next to the power socket. The On/Off switch is shown below.

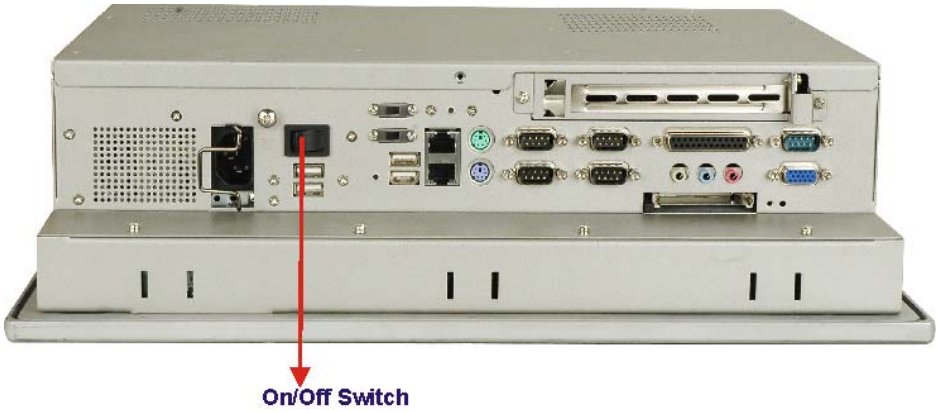


Figure 2-30: On/Off Switch

2.8 Wireless LAN

The WIDS-51XX panel PC package has a wireless LAN (WLAN) module compliant with the IEEE 802.11n communications protocol which can be installed in the Mini-PCIe socket and interfaced to the Intel® ICH7 through the PCIe x1 bus.

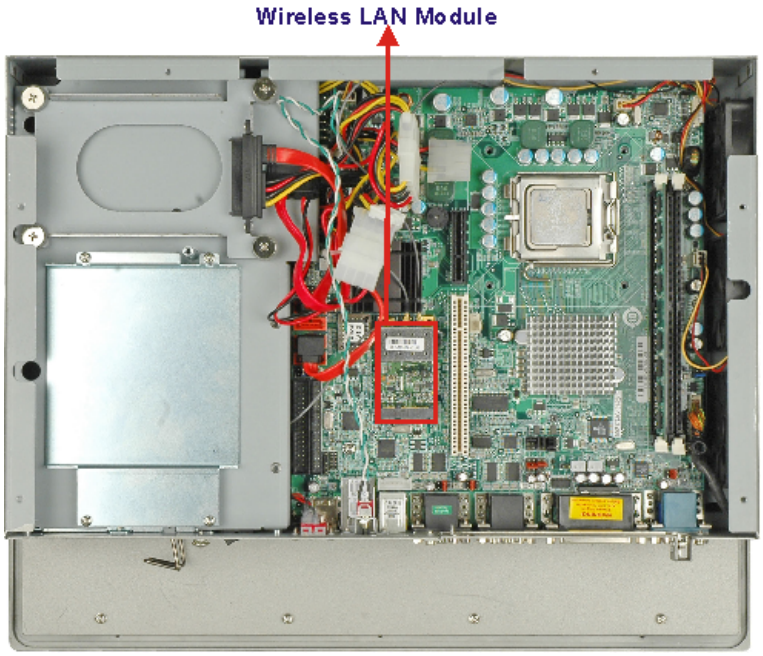


Figure 2-31: Wireless LAN Module (Installed by Users)

The wireless module is then connected directly to the front panel antenna.

Figure 2-32: Antenna

2.9 System Ventilation

System ventilation is critical. Failure to ensure proper airflow through the system may result in irreparable damage to the WIDS-51XX. To help facilitate airflow through the WIDS-51XX, the WIDS-51XX has three 12 V, 0.3 A Everflow cooling fans installed on the left side of the system. A further three air vents on the left side of the system ensures air can flow through the system unobstructed.

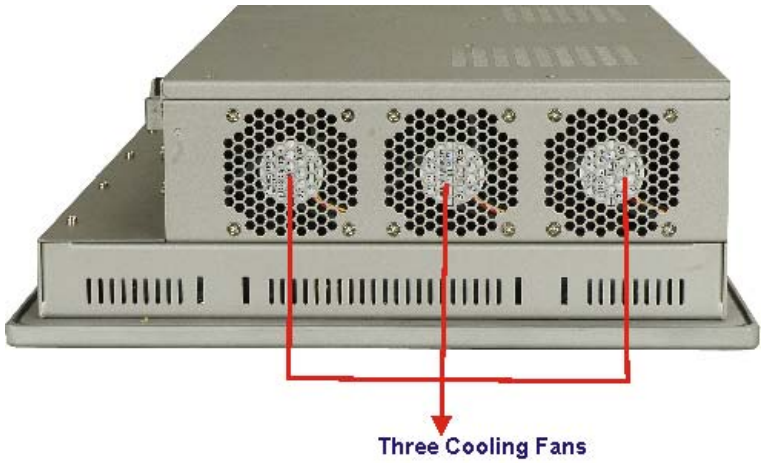


Figure 2-33: Internal View of Cooling Fans

The cooling fans are 60 mm x 60 mm x 15 mm in size. Fan specifications are listed in the appendix.

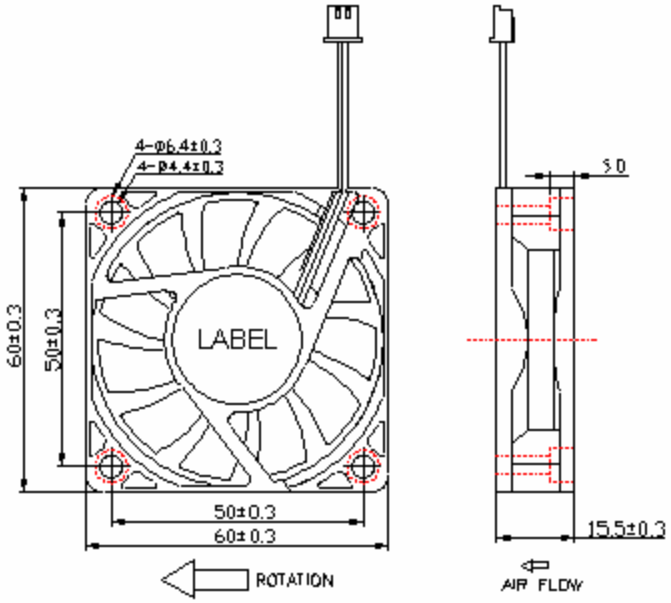


Figure 2-34: Cooling Fan Dimensions

Chapter

3

Unpacking

3.1 Unpacking

To unpack the flat panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the flat panel PC has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the external (second) box.

Step 2: Open the external (second) box.

Step 3: Use box cutters, a knife or a sharp pair of scissors that seals the top side of the internal (first) box.

Step 4: Lift the monitor out of the boxes.

Step 5: Remove both polystyrene ends, one from each side.

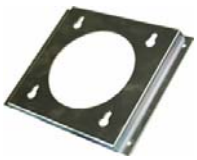
Step 6: Pull the plastic cover off the flat panel PC.

Step 7: Make sure all the components listed in the packing list are present. **Step 0:**

3.1.1 Packing List

The WIDS-51XX flat panel PC is shipped with the following components:

Quantity	Item	Image
Standard		
1	**WIDS-51XX**	

1	Screw Kit (**P/N:** 19600-000078-RS)	
1	Panel Mounting Kit (**P/N:** PK-170Ms)	
1	Wall Mounting Kit (**P/N**: WK-190MS-R10)	
1	Power Cord (**P/N**: 32000-000002-RS)	
1	Mini jumper pack (2.4mm) (**P/N**:33100-000079-RS)	
1	User manual CD and driver CD	
1	Wireless LAN module	
Optional		
DVD-ROM adapter kit (**P/N**: 19Z00-000112-RS)		
CD-ROM IDE Cable 40 CM (**P/N**: 32200-000045-RS)		
IDE HDD Bracket (**P/N**: 41010-0393C0-00-RS)		

25 cm HDD IDE cable (**P/N**: 32200-000037-RS)	
Rack mount kit (15”) (**P/N**: RK-150MS-R10)	
Stand (**P/N**: STAND-210-RS)	
Arm (**P/N**: ARM-31-RS)	

If any of these items are missing or damaged, contact the distributor or sales representative immediately.

Chapter

4

Installation

4.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the WIDS-51XX may result in permanent damage to the WIDS-51XX and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WIDS-51XX. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the WIDS-51XX is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***:- Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring the WIDS-51XX, place it on an antic-static pad. This reduces the possibility of ESD damaging the WIDS-51XX.
- ***Only handle the edges of the PCB***:-: When handling the PCB, hold the PCB by the edges.

4.2 Installation Precautions

When installing the flat panel PC, please follow the precautions listed below:

- **Power turned off**: When installing the flat panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.

- **Mounting**: The flat panel PC is a heavy device. When mounting the system onto a rack, panel, wall or arm please make sure that at least two people are assisting with the procedure.
- **Anti-static Discharge**: If a user open the rear panel of the flat panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

4.3 Preinstalled Components

The following components are all preinstalled.

- Motherboard
- Processor
- LCD screen
- 1.0 GB DDR2 memory module
- Resistive type touch screen

Preinstalled OEM customizations may include the following.

- Different DDR memory module
- Different processor
- Hard disk drive
- GPRS module

Component installation is described in **the following sections.**

4.4 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the flat panel PC

Step 2: Install CF card

Step 3: Install the PCI expansion card

Step 4: Mount the flat panel PC

Step 5: Connect peripheral devices to the bottom panel of the flat panel PC

Step 6: Configure the system

Step 7: Power on the system

4.5 Removing the Back Panel

To access the WIDS-51XX internally the back panel must be removed. To remove the back panel, please follow the steps below.

Step 1: **Remove the rear panel**. Remove the eight retention screws (**Figure 4-1**) from the rear panel and lift the panel off the WIDS-51XX.

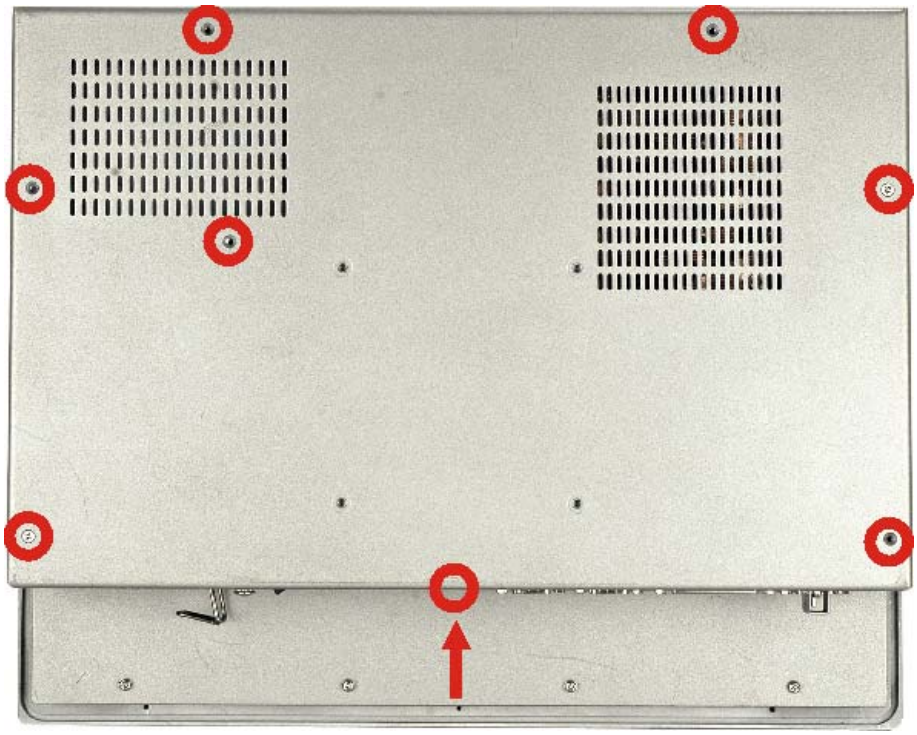


Figure 4-1: Rear Panel Retention Screws

4.6 HDD Drive Installation

To install the SATA HDD in the system, please do the following:

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Remove the drive bracket**. The drive bracket is secured to the system with four retention screws. Remove these screws.

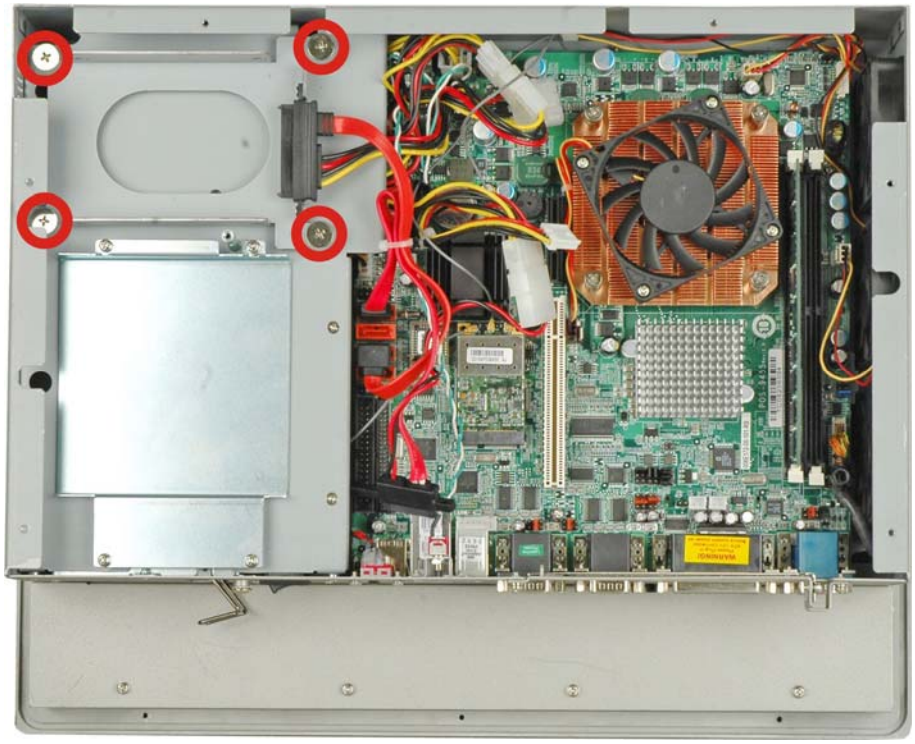


Figure 4-2: Drive Bracket Retention Screws

Step 3: **Insert the drive**. Carefully slide the drive into the bracket making sure the connector at the back of the drive is properly inserted into the connector on the drive bracket.

Step 4: **Secure the drive**. Secure the drive to the drive bracket with four retention screws, two on either side.

Figure 4-3: Insert the Drive

Step 5: **Reinstall the bracket**. Reinstall the drive bracket into the system. Make sure the four retention screws are properly secured to the system.

4.7 DIMM Installation

The system is shipped with a single DIMM. To install an additional DIMM please do the following.

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Locate the DIMM module**. The DIMM module is located next to the CPU module. See Figure 4-4.

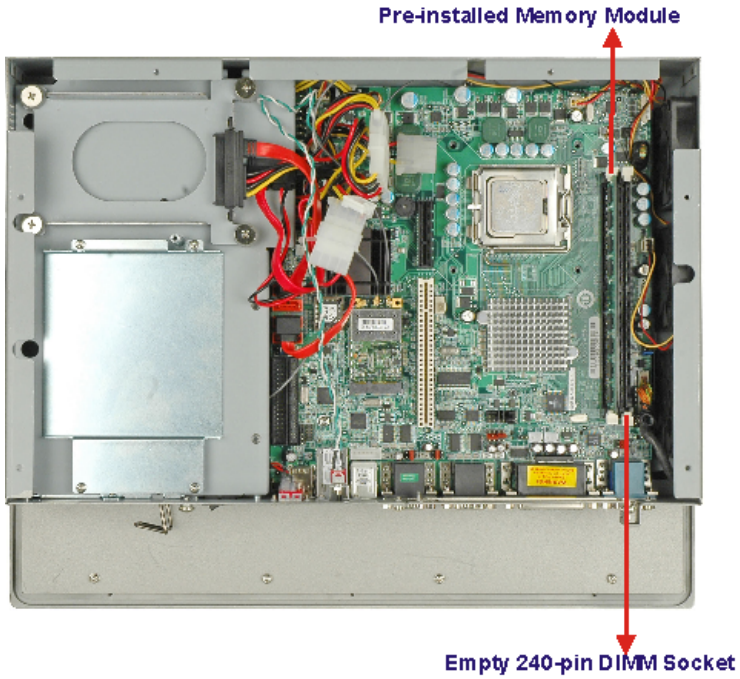


Figure 4-4: DIMM Socket Location

Step 3: **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be removed from the socket, the handles must be opened.

Step 4: **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See **Figure 4-5**.

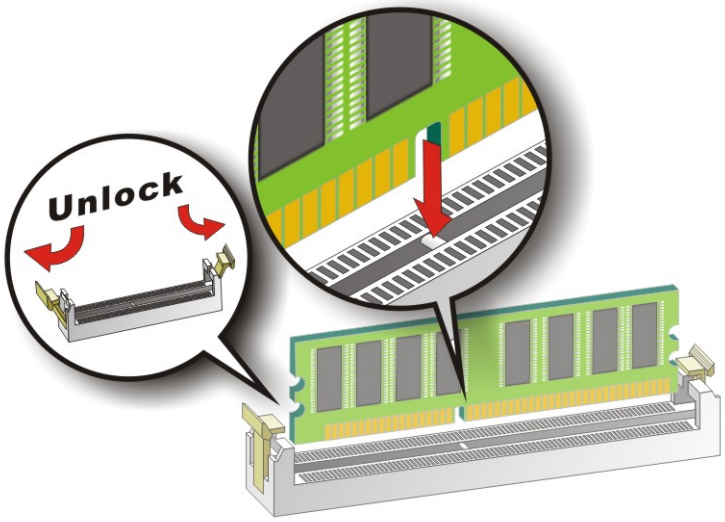


Figure 4-5: Installing a DIMM

Step 5: **Align the DIMM with the socket**. The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the socket. See **Figure 4-5**.

Step 6: **Insert the DIMM**. Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will close automatically and secure the DIMM to the socket. See **Figure 4-5**.

4.8 CD-ROM Drive Installation

To install the CD-ROM drive, please do the following.

Step 1: **Remove the rear panel**. See **Section 4.5**.

Step 2: **Remove the CD-ROM drive bracket**. The CD-ROM drive bracket is secured to the system with four retention screws. Remove these screws.

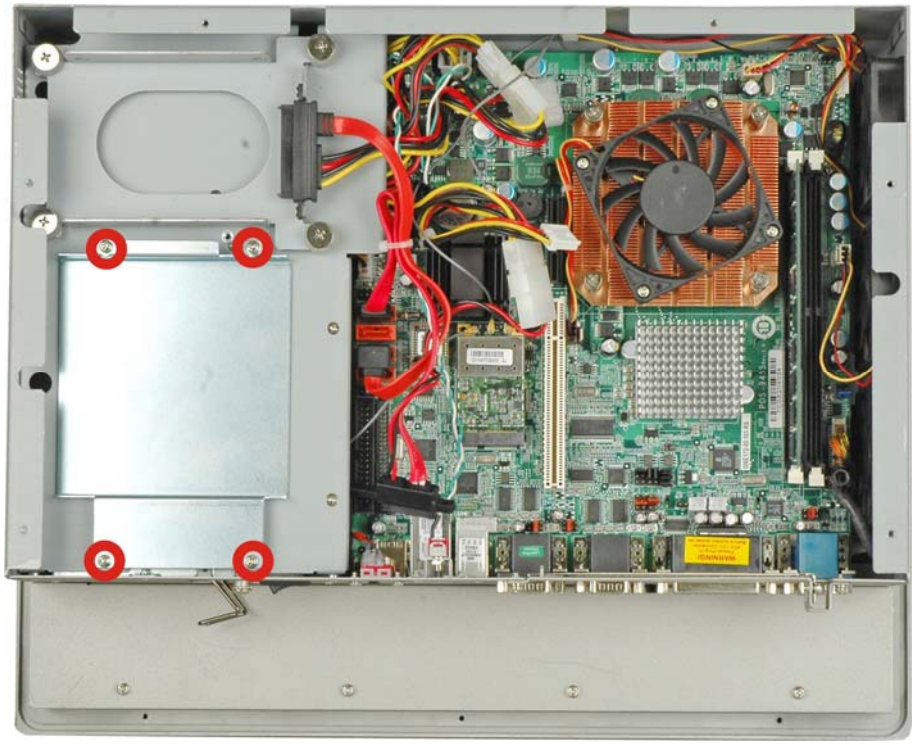


Figure 4-6: Remove CD ROM Driver Bracket Screws

Step 3: **Insert the CD-ROM drive**. Put the drive into the drive bracket. Make sure the front of the CD-ROM drive is correctly positioned with the drive tray opening pointing to the outside.

Step 4: **Secure the drive**. Secure the drive to the drive bracket with four retention screws, two on either side.

Step 5: **Insert the cables**. Insert the drive cable and the power cable into the connectors at the back of the drive. Connect the cable connector to the correct interface connector (IDE or SATA) on the POS-9455. Connect the power cable to the power connector from the power supply.

Figure 4-7: Secure the CD ROM to the Drive Bracket

Step 6: **Remove the cover on the WIDS-51XX chassis.** Knock out the metal cover covering the opening for the CD-ROM drive.

Step 7: **Reinstall the bracket**. Reinstall the drive bracket into the system. Make sure the four retention screws are properly secured to the system and that the opening for the CD-ROM drive is correctly positioned facing out.

4.9 PCI Expansion Card Installation

To install a PCI expansion card, please do the following.

Step 1: **Remove the back panel**. See **Section 4.5**.

Step 2: **Remove the expansion slot cover**. The expansion slot on the I/O panel interface is secured to the system with a single retention screw. Remove the screw.

Figure 4-8: Expansion Slot Retention Screw

Step 3: **Insert the expansion card**. Align the PCI expansion card edge connector with the PCI expansion slot on the PCI riser card. Gently insert the PCI card into the PCI expansion slot.

Step 4: **Secure the expansion card**. Once the PCI card is correctly installed in the system, reinsert the previously removed retention screw to secure the card to the I/O interface panel.

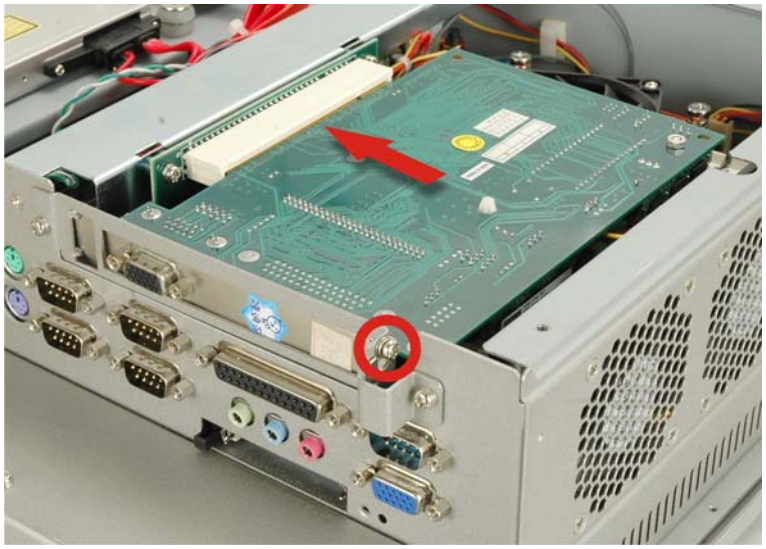


Figure 4-9: Install PCI Card

4.10 PCIe Expansion Card Installation

To install a PCI expansion card, please do the following.

Step 1: **Remove the back panel**. See **Section 4.5**.

Step 2: **Remove the expansion slot cover**. The expansion slot on the I/O panel interface is secured to the system with a single retention screw. Remove the screw.

Figure 4-10: Expansion Slot Retention Screw

Step 3: **Remove the PCI riser card**. The PCI riser card is secured to the system with two retention screws. Remove the two retention screws and gently lift the PCI riser card out of the system.

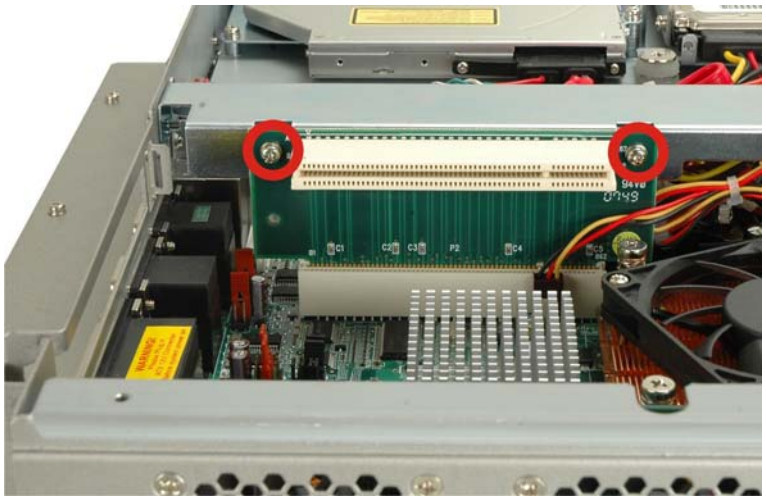


Figure 4-11: Remove the PCI Riser Card

Step 4: **Install the PCIe riser card**. Align the PCIe riser card edge connector with the PCIe expansion slot on the POS-9455. Gently insert the PCIe riser card.

Step 5: **Secure the PCIe riser card**. Secure the PCIe riser card with the two previously removed retention screws.

Figure 4-12: Install the PCIe Riser Card

Step 6: **Insert the expansion card**. Align the PCIe expansion card edge connector with the PCIe expansion slot on the PCIe riser card. Gently insert the PCIe card into the PCIe expansion slot.

Step 7: **Secure the expansion card**. Once the PCIe card is correctly installed in the system, reinsert the previously removed retention screw to secure the card to the I/O interface panel.

Figure 4-13: Install PCI Card

4.11 Jumper Settings

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

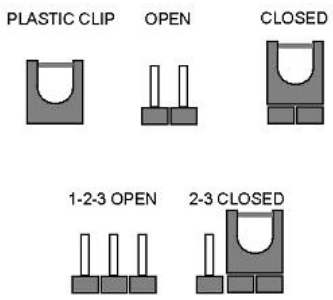


Figure 4-14: Jumper Locations

The following jumpers can be found on the motherboard installed in the WIDS-51XX. Before the WIDS-51XX is installed, the jumpers must be set in accordance with the desired configuration. The jumpers on the WIDS-51XX motherboard are listed in **Table 4-1**.

Description	Label	Type
CF Card Setup	JP7	2-pin header
COM1 Pin 9 setting	JP3	6-pin header
COM2 Pin 9 setting	JP4	6-pin header
COM3 Pin 9 setting	JP5	6-pin header
COM4 Pin 9 setting	JP6	6-pin header
COM5 Pin 9 setting	JP8	6-pin header
COM5 RX RS-232/422/485 Select	J2	6-pin header
COM5 TX RS-422/485 Select	J3	6-pin header
COM5 D-SUB pin out select	J4	12-pin header

Table 4-1: Jumpers

4.11.1 Access the Jumpers

To access the jumpers, remove the back panel. To remove the back panel, please refer to **Section 4.5**.

4.11.2 Preconfigured Jumpers

WARNING:

Do not change the settings on the jumpers in described here. Doing so may disable or damage the system

The following jumpers are preconfigured for the WIDS-51XX. Users should no change these jumpers.

Jumper Name	Label	Type
LVDS voltage selection	JP9	6-pin header
Touch Screen Select	J7	4-pin header
Panel Type and Resolution	JP1	8-pin header

Table 4-2: Preconfigured Jumpers

4.11.3 CF Card Setup

Jumper Label: JP7

Jumper Type: 2-pin header

Jumper Settings: See Table 4-3

Jumper Location: See Figure 4-15

The CF Card Setup jumper sets the CF Type I card or CF Type II cards as either the slave device or the master device. CF Card Setup jumper settings are shown in Table 4-3.

CF Card Setup	Description	
Open	Slave	Default
Closed	Master	

Table 4-3: CF Card Setup Jumper Settings

The CF Card Setup jumper location is shown in Figure 4-15.

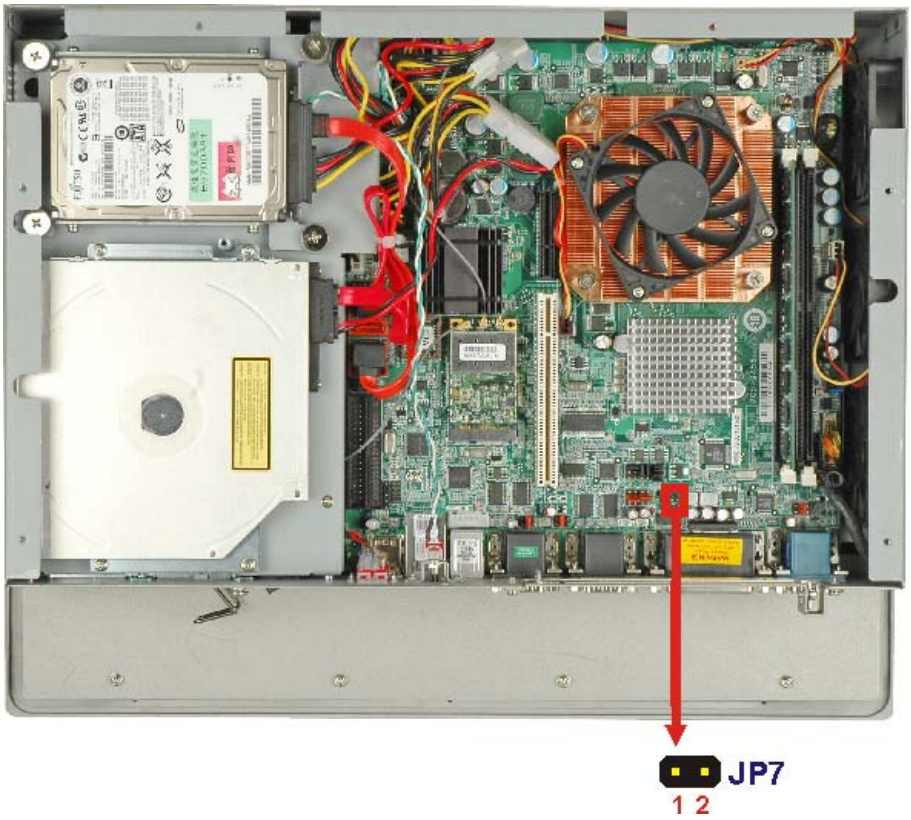


Figure 4-15: CF Card Setup Jumper Location

4.11.4 COM1 to COM5 Pin 9 Select

Jumper Label:	**JP3, JP4, JP5, JP6 and JP8**
Jumper Type:	10-pin header
Jumper Settings:	See **Table 4-4**
Jumper Location:	See **Figure 4-16**

Four jumpers (JP3, JP4, JP5, JP6 and JP8) configure pin 9 on the COM1, COM2, COM3 COM4 and COM5 connectors. Pin 9 on these connectors can be set as either +5 V, +12 V or as the ring (RI) signal. The COM1, COM2, COM3, COM4 and COM5 Pin 9 Setting jumper selection options are shown in **Table 4-4**.

	Serial Port	Short 1 – 2	Short 3 – 4 Default	Short 5 - 6
JP3	COM1	+12 V	RI signal	+5 V
JP4	COM2	+12 V	RI signal	+5 V
JP5	COM3	+12 V	RI signal	+5 V
JP6	COM4	+12 V	RI signal	+5 V
JP8	COM5	+12 V	RI signal	+5 V

Table 4-4: COM1 to COM5 Pin 9 Setting Jumper Settings

The COM1 to COM5 Pin 9 Setting jumper locations are shown in **Figure 4-16** below.

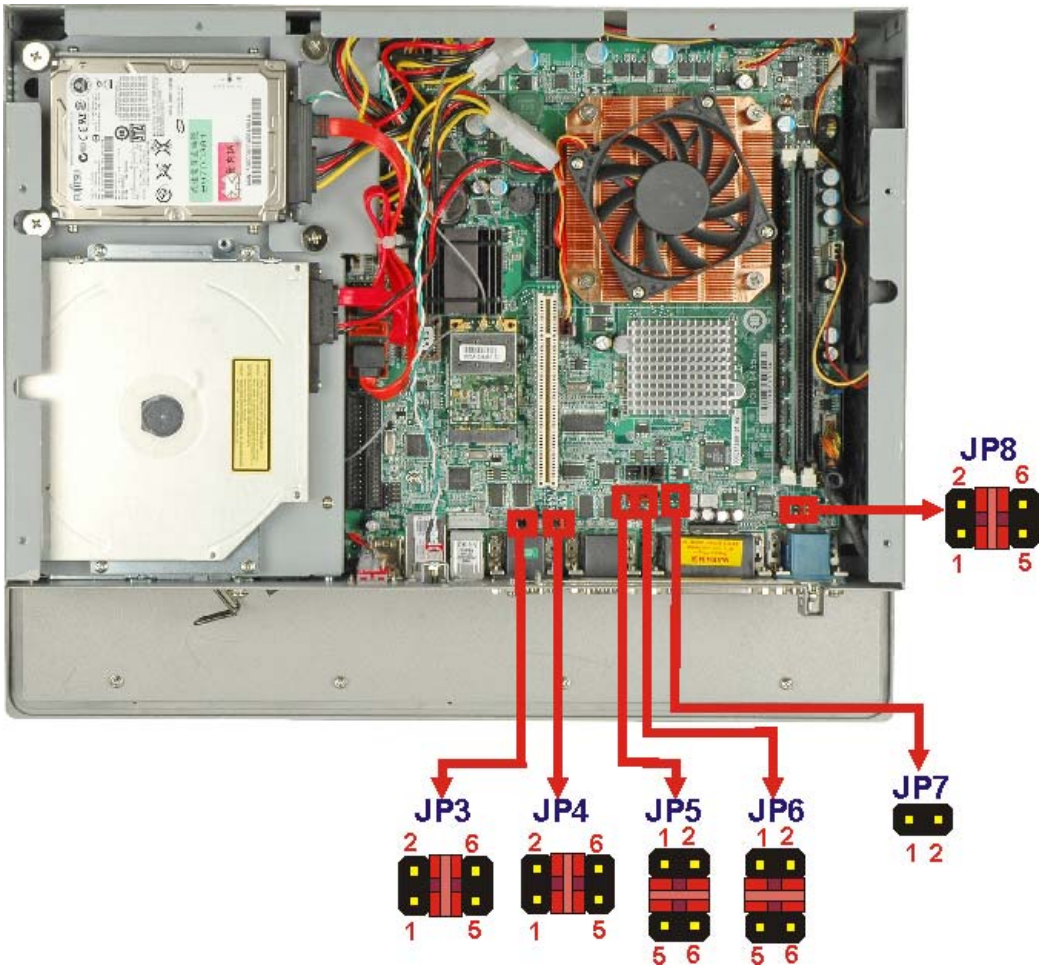


Figure 4-16: COM1 to COM5 Pin 9 Setting Jumper Locations

4.11.5 COM5 RX Function Select Jumper

Jumper Label:	**J2**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 4-5**
Jumper Location:	See **Figure 4-17**

The COM5 RX Function Select jumper sets the communication protocol used by the RX serial communications port COM5 as RS-232, RS-422 or RS-485. The COM5 RX Function Select jumper settings are shown in **Table 4-7**.

COM5 RX Function Select	Description	
Short 1-2	RS-232	Default
Short 3-4	RS-422	
Short 4-6	RS-485	

Table 4-5: COM5 RX Function Select Jumper Settings

The COM5 RX Function Select jumper location is shown in **Figure 4-19**.

Figure 4-17: COM5 RX Function Select Jumper Location

4.11.6 COM5 TX Function Select Jumper

Jumper Label:	**J3**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 4-6**
Jumper Location:	See **Figure 4-18**

The COM5 TX Function Select jumper configures the TX pin on COM5 serial port connector as RS-422 as an RS-485. The COM6 TX Function Select jumper selection options are shown in **Table 4-6**.

COM4 TX Function	Description	
Short 1 – 3	RS-422	Default
Short 2 – 4	RS-422	Default
Short 3 – 5	RS-485	
Short 4 – 6	RS-485	

Table 4-6: COM5 TX Function Select Jumper Settings

The COM5 TX Function Select jumper location is shown in **Figure 4-18** below.

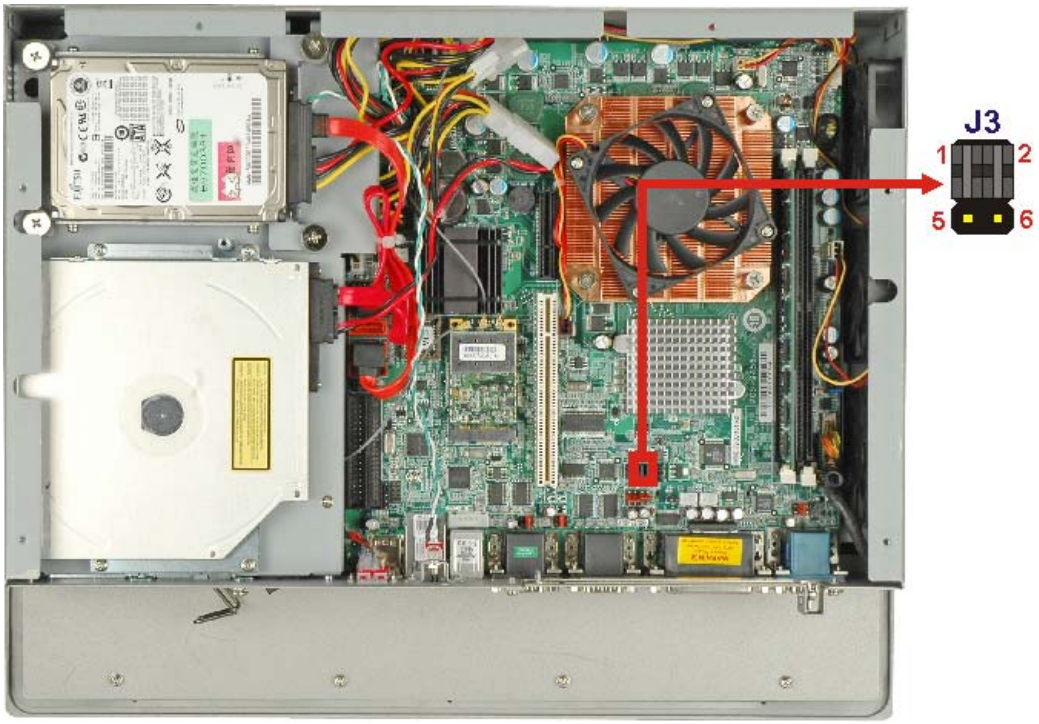


Figure 4-18: COM5 TX Function Select Jumper Pinout Locations

4.11.7 COM5 RS-232/422/485 Serial Port Select Jumper

Jumper Label: **J4**

Jumper Type: 12-pin header (four 3-pin headers combined)

Jumper Settings: See **Table 4-7**

Jumper Location: See **Figure 4-19**

The COM5 RS-232/422/485 Serial Port Select jumper sets the communication protocol used by the second serial communications port (COM5) as RS-232, RS-422 or RS-485. The COM5 RS-232/422/485 Serial Port Select settings are shown in **Table 4-7**.

RS-232/485 Select	Description	
Short 1-2	RS-232	Default
Short 4-5	RS-232	Default
Short 7-8	RS-232	Default
Short 10-11	RS-232	Default
Short 2-3	RS-422/485	
Short 5-6	RS-422/485	
Short 8-9	RS-422/485	
Short 11-12	RS-422/485	

Table 4-7: COM5 RS-232/422/485 Serial Port Select Jumper Settings

The COM5 RS-232/422/485 Serial Port Select jumper location is shown in **Figure 4-19**.

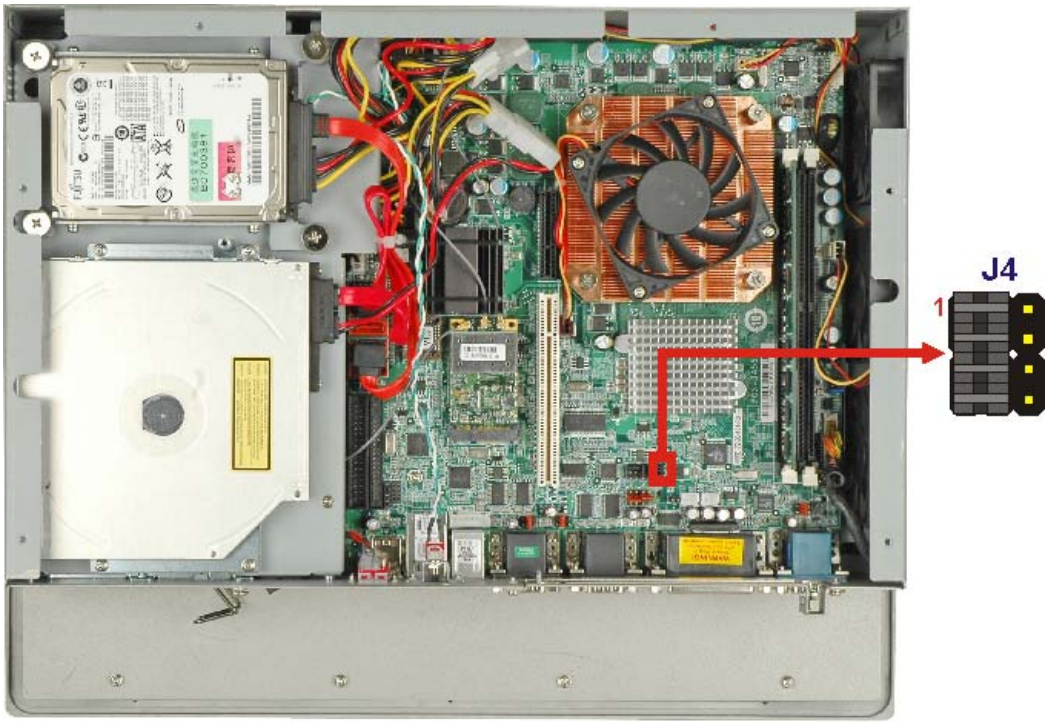


Figure 4-19: COM5 RS-232/422/485 Serial Port Select Jumper Location

4.12 AT/ATX Mode Selection

AT and ATX power modes can both be used on the WIDS-51XX flat panel PC. The selection is made through an AT/ATX switch on the I/O interface panel. The switch is shown below.

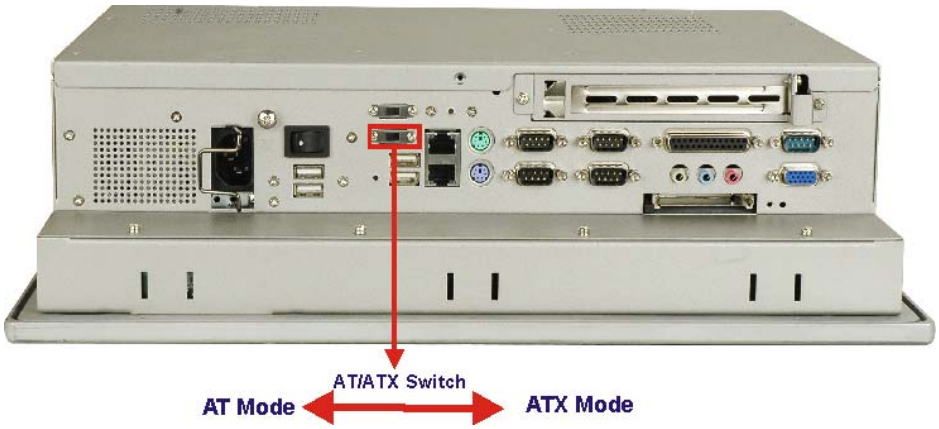


Figure 4-20: AT/ATX Power Switch Selection

4.13 Activating the Front USB Connectors

A USB switch on the I/O panel activates the two USB connectors on the front panel. To access the USB connectors and activate the connectors, please do the following:

Step 1: **Open the cover**. The USB connectors are secured to the front panel with two retention screws. Remove these screws.

Figure 4-21: Access the Front USB Connectors

Step 2: **Activate the USB connectors**. To activate the USB connectors, move the USB switch to the left.

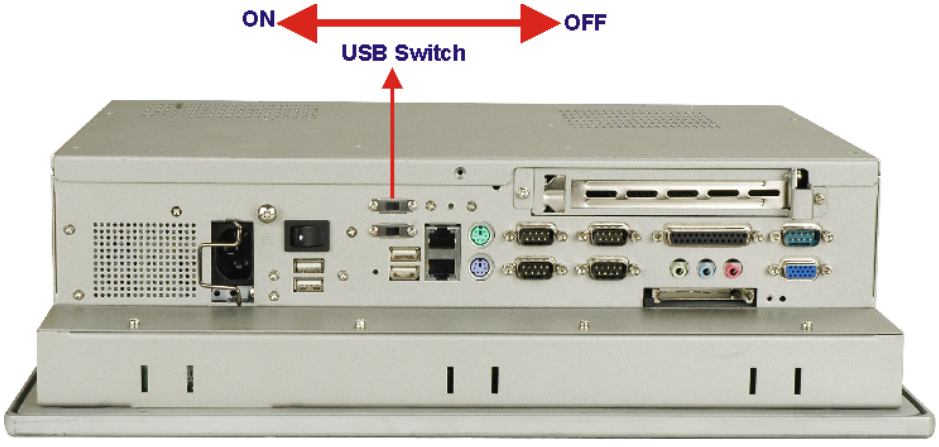


Figure 4-22: USB Switch

Step 3: **Check the USB connector status**. When the USB switches are activated, a green LED next to the connectors turns on.

Figure 4-23: Green LED

4.14 Mounting the System

WARNING!

When mounting the flat panel PC onto an arm, onto the wall or onto a panel, it is better to have more than one person to help with the installation to make sure the panel PC does not fall down and get damaged.

The four methods of mounting the WIDS-51XX are listed below.

- Wall mounting
- Panel mounting
- Arm mounting
- Rack mounting

The four mounting methods are described below.

4.14.1 Wall Mounting

To mount the flat panel PC onto the wall, please follow the steps below.

Step 1: Select the location on the wall for the wall-mounting bracket.

Step 2: Carefully mark the locations of the four screw holes in the bracket on the wall.

Step 3: Drill four pilot holes at the marked locations on the wall for the bracket retention screws.

Step 4: Align the wall-mounting bracket screw holes with the pilot holes.

Step 5: Secure the mounting-bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 4-24**).

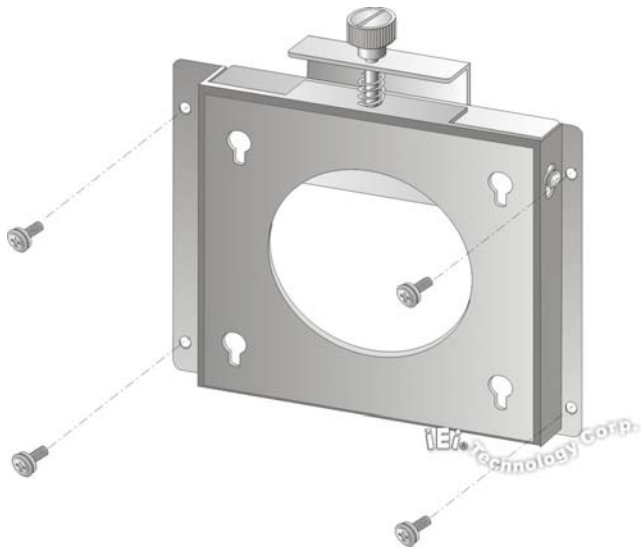


Figure 4-24: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the real panel of the flat panel PC and tighten until the screw shank is secured against the rear panel (**Figure 4-25**).

Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 4-25**). Ensure that all four of the mounting screws fit snuggly into their respective slotted holes.

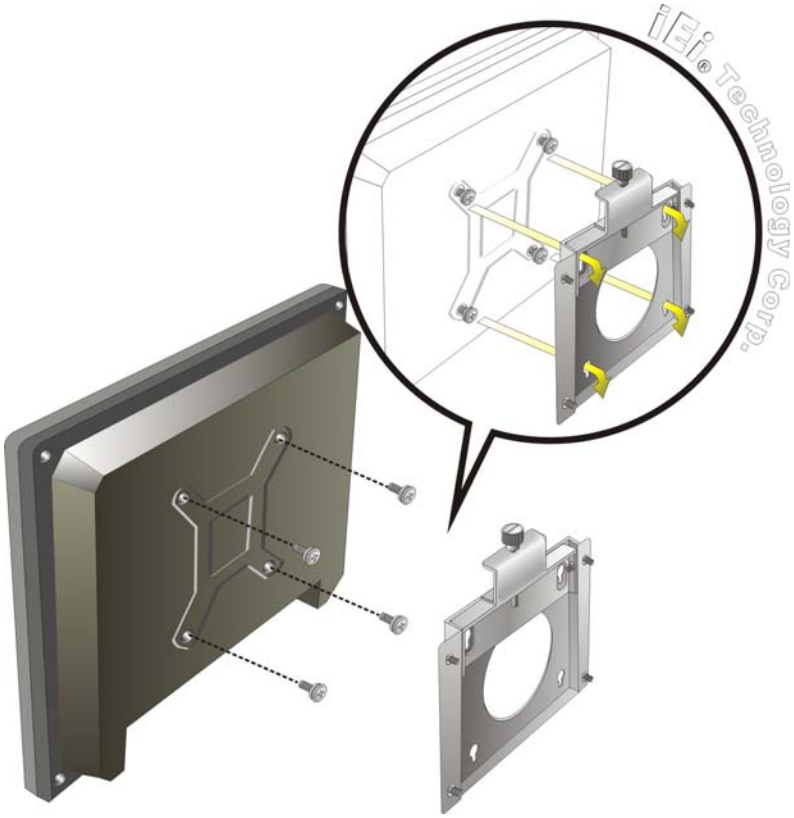


Figure 4-25: Chassis Support Screws

NOTE:

In the diagram below the bracket is already installed on the wall.

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket. (**Figure 4-26**).

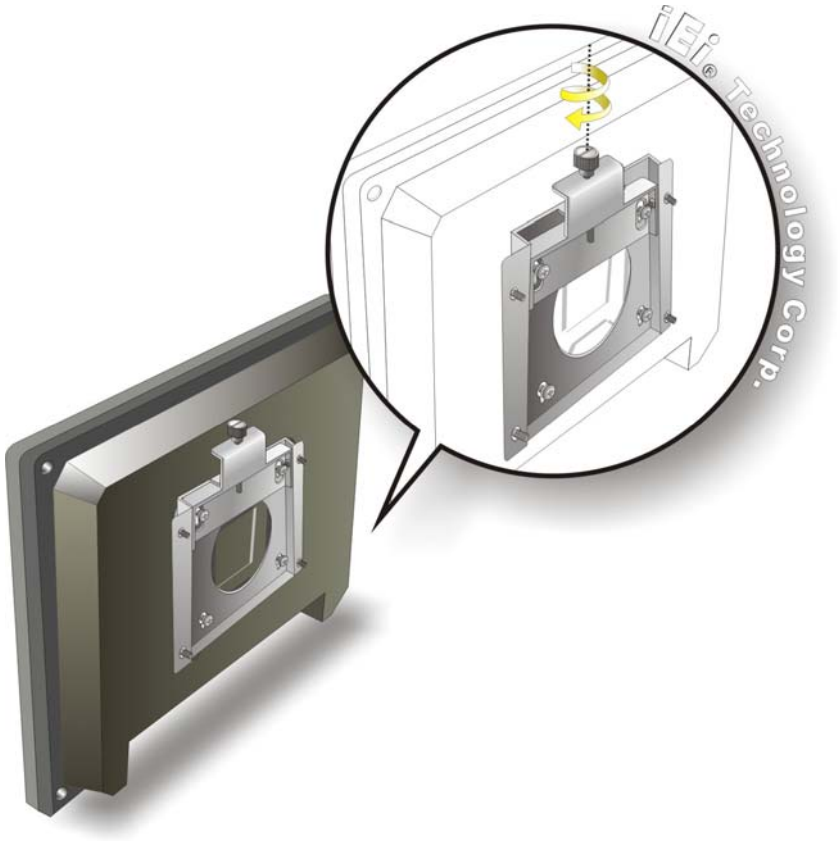


Figure 4-26: Secure the Panel PC

4.14.2 Panel Mounting

To mount the WIDS-51XX series flat panel PC into a panel, please follow the steps below.

Step 1: Select the position on the panel to mount the flat panel PC.

Step 2: Cut out a section from the panel that corresponds to the rear panel dimensions of the flat panel PC. Take care that the panel section that is cut out is smaller than the overall size of the metal frame that surrounds the flat panel PC but just large enough for the rear panel of the flat panel PC to fit through.

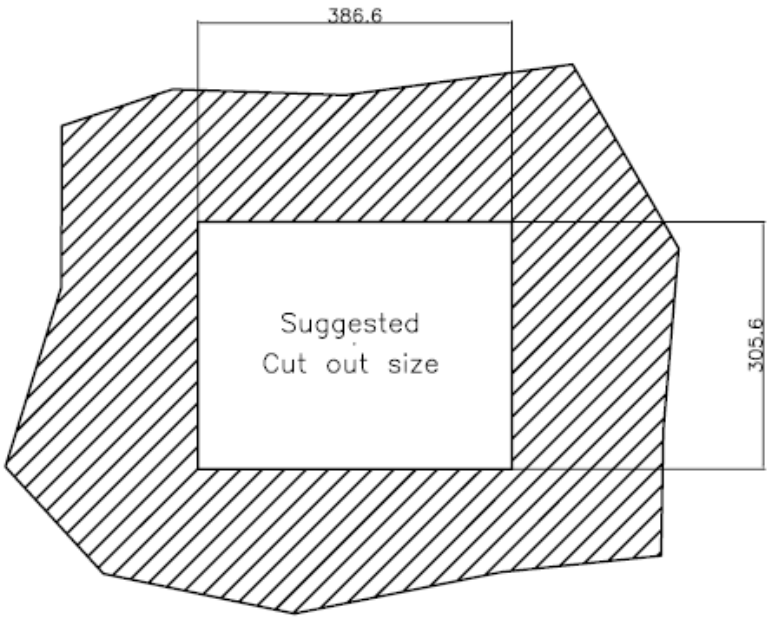


Figure 4-27: WIDS-515A Panel Opening

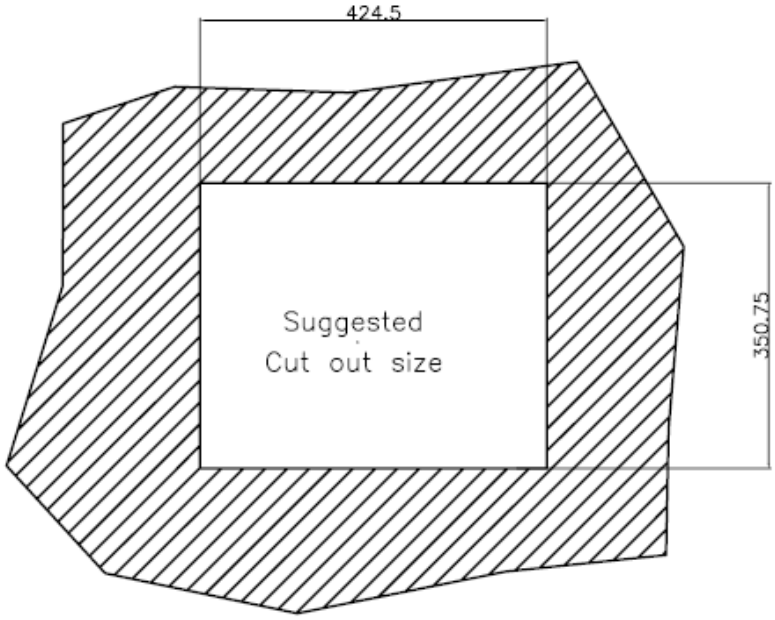


Figure 4-28: WIDS-517A Panel Opening

Step 3: Slide the flat panel PC through the hole until the frame is flush against the panel.

Step 4: Insert the panel mounting clamps into the pre-formed holes along the edges of the chassis, behind the frame.

Step 5: Tighten the screws that pass through the panel mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 4-29**).

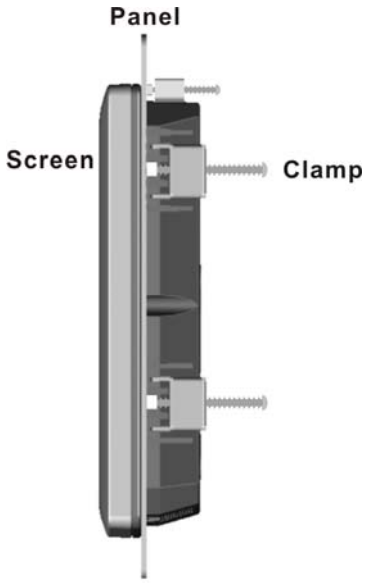


Figure 4-29: Tighten the Panel Mounting Clamp Screws

4.14.3 Arm Mounting

The WIDS-51XX series is VESA (Video Electronics Standards Association) compliant and can be mounted on an arm with a 100mm interface pad. To mount the WIDS-51XX series on an arm, please follow the steps below.

Step 1: The arm is a separately purchased item. Please correctly mount the arm onto the surface it uses as a base. To do this, refer to the installation documentation that came with the mounting arm.

NOTE:

When purchasing the arm please ensure that it is VESA compliant and that the arm has a 100 mm interface pad. If the mounting arm is not VESA compliant it cannot be used to support the WIDS-51XX series flat panel PC.

Step 2: Once the mounting arm has been firmly attached to the surface, lift the flat panel PC onto the interface pad of the mounting arm.

Step 3: Align the retention screw holes on the mounting arm interface with those in the flat panel PC. The WIDS-51XX arm mount retention screw holes are shown in **Figure 4-30**.

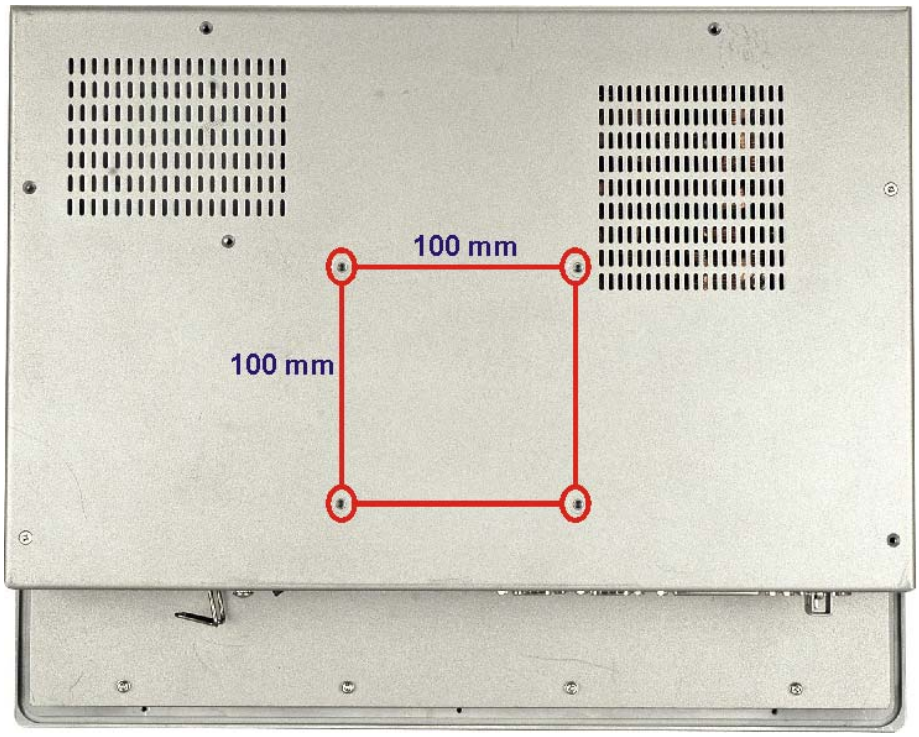


Figure 4-30: WIDS-51XX Arm Mounting Retention Screw Holes

Step 4: Secure the flat panel PC to the interface pad by inserting four retention screws through the bottom of the mounting arm interface pad and into the flat panel PC. **Step 0:**

4.14.4 Cabinet and Rack Installation

The WIDS-51XX series flat panel PC can be installed into a cabinet or rack. The installation procedures are similar to the panel mounting installation. To do this, please follow the steps below:

NOTE:

When purchasing the cabinet/rack installation bracket, make sure it is compatible with both the WIDS-51XX series flat panel PC and the rack/cabinet into which the AFL LX series is installed.

Step 1: Slide the rear chassis of the WIDS-51XX series flat panel PC through the rack/cabinet bracket until the frame is flush against the front of the bracket (**Figure 4-31**).

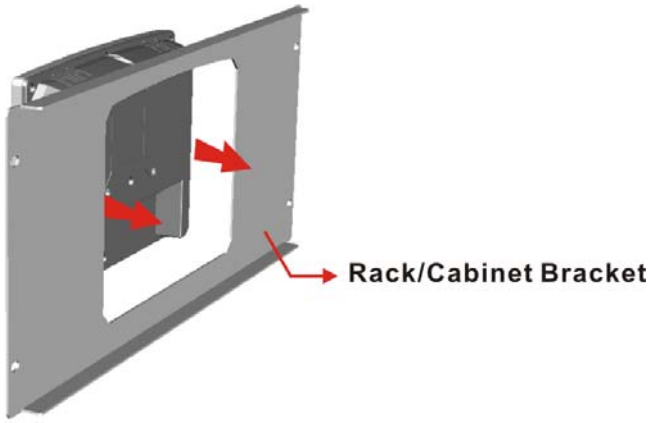


Figure 4-31: The Rack/Cabinet Bracket

Step 2: Insert the rack mounting clamps into the pre-formed holes along the edges of the flat panel PC, behind the ABS/PC plastic frame.

Step 3: Tighten the screws that pass through the rack mounting clamps until the plastic caps at the front of all the screws are firmly secured to the bracket (**Figure 4-32**).

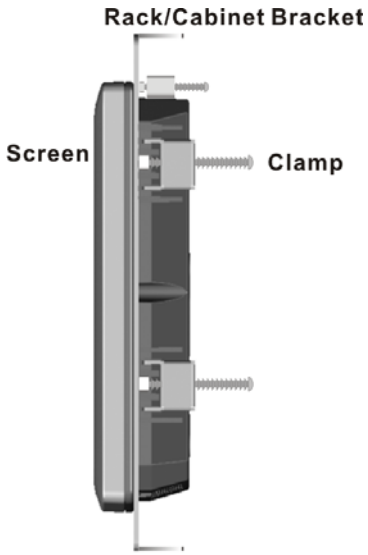


Figure 4-32: Secure the Rack/Cabinet Bracket

Step 4: Slide the flat panel PC with the attached rack/cabinet bracket into a rack or cabinet (**Figure 4-33**).

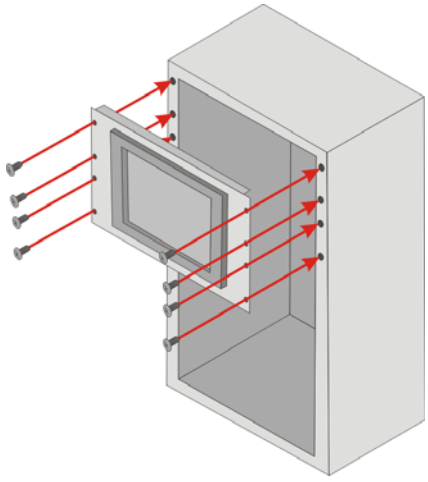


Figure 4-33: Install into a Rack/Cabinet

Step 5: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 4-33**).

4.15 Bottom Panel Connectors

4.15.1 Audio Connection

Audio signals are interfaced through three phone jack connections. The red phone jack is for Mic In, blue is for Line In and green is for Speaker Out. Follow the steps below to connect audio devices to the WIDS-51XX.

Step 1: **Locate the audio jacks**. The location of the audio jacks are shown in **Chapter 3**.

Step 2: **Insert audio jack plugs**. Insert audio jack plugs into the audio pjacks on the external peripheral interface. See Figure 4-34.

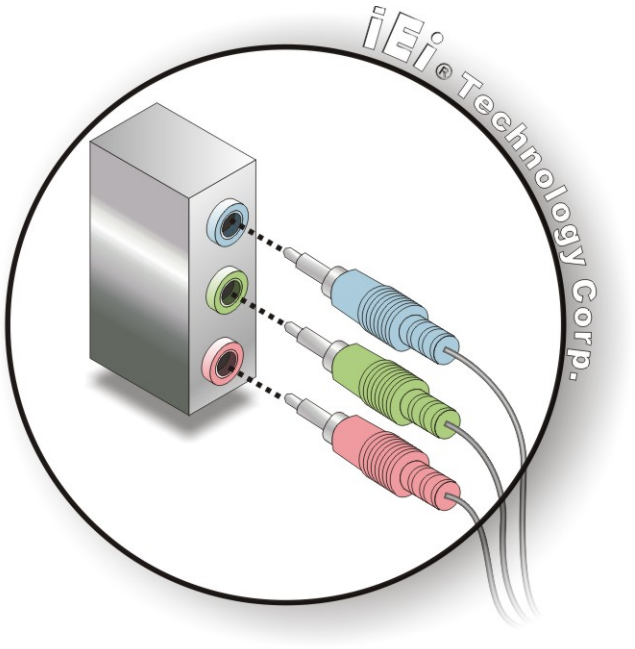


Figure 4-34: Audio Connectors

4.15.2 LAN Connection

There is one external RJ-45 LAN connector. The RJ-45 connector enables connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Locate the RJ-45 connectors** on the bottom panel of the WIDS-51XX Series.

Step 2: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the bottom panel of the WIDS-51XX Series. See **Figure 4-35**.

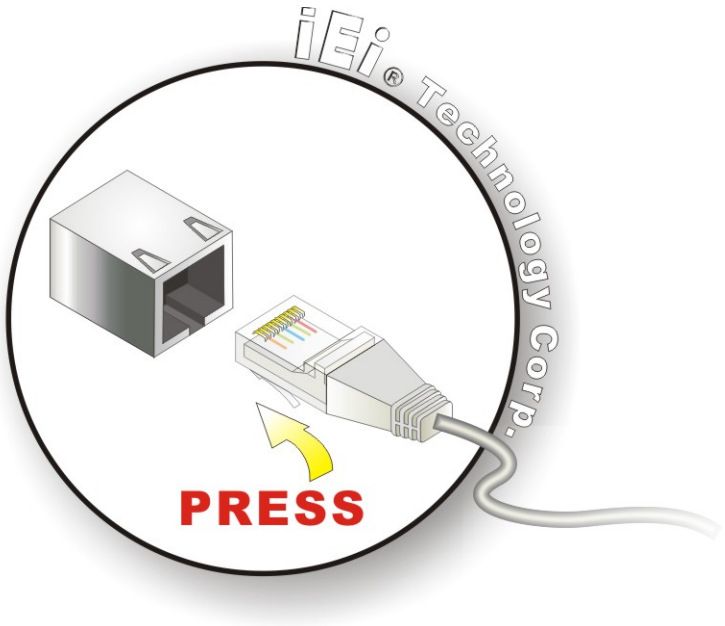


Figure 4-35: LAN Connection

Step 3: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the onboard RJ-45 connector.

4.15.3 PS/2 Keyboard and Mouse Connection

The WIDS-51XX has a dual PS/2 connector on the external peripheral interface panel. The dual PS/2 connector is used to connect to a keyboard and mouse to the system. Follow the steps below to connect a keyboard and mouse to the WIDS-51XX.

Step 1: **Locate the dual PS/2 connector**. The location of the dual PS/2 connector is shown in **Chapter 3**.

Step 2: **Insert the keyboard/mouse connector**. Insert a PS/2 keyboard or mouse connector into the appropriate PS/2 connector on the external peripheral interface connector. See Figure 4-36.

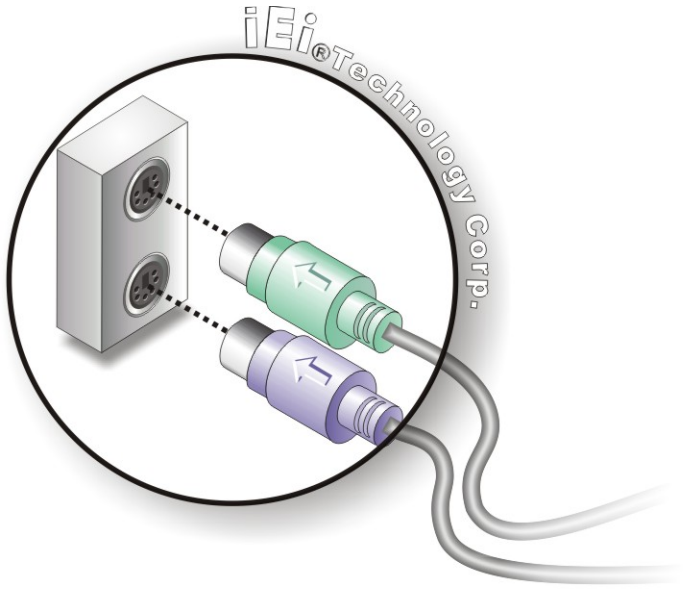


Figure 4-36: PS/2 Keyboard/Mouse Connector

4.15.4 Serial Device Connection

The WIDS-51XX Series has four male DB-9 connectors on the bottom panel for serial devices to be connected. Follow the steps below to connect a serial device to the WIDS-51XX Series panel PC.

Step 1: **Locate the DB-9 connector**. The location of the DB-9 connector is shown in **Chapter 2**.

Step 2: **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the bottom panel. See **Figure 4-37**.

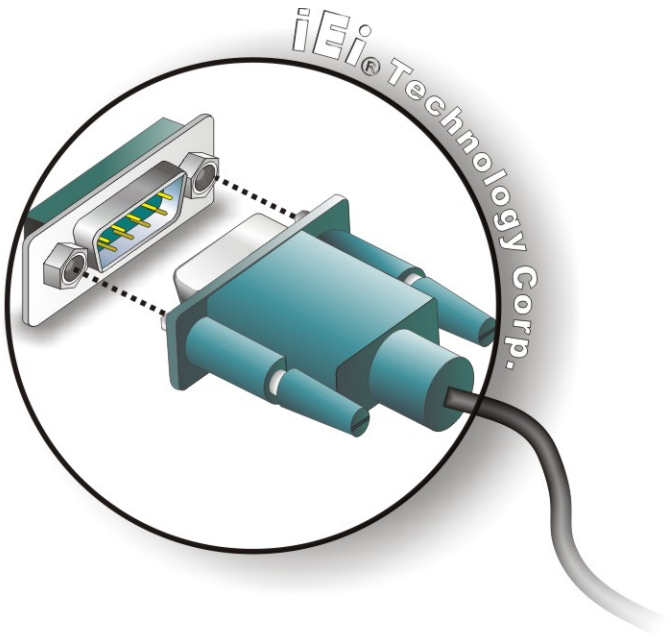


Figure 4-37: Serial Device Connector

Step 3: **Secure the connector**. Secure the serial device connector to the external interface by tightening the two retention screws on either side of the connector.

4.15.5 USB Device Connection

There are four external USB 2.0 connectors. All connectors are perpendicular to the WIDS-51XX Series. To connect a USB 2.0 or USB 1.1 device, please follow the instructions below.

Step 1: **Located the USB connectors**. The locations of the USB connectors are shown in **Chapter 2**.

Step 2: **Align the connectors.** Align the USB device connector with one of the connectors on the bottom panel. See **Figure 4-38**.

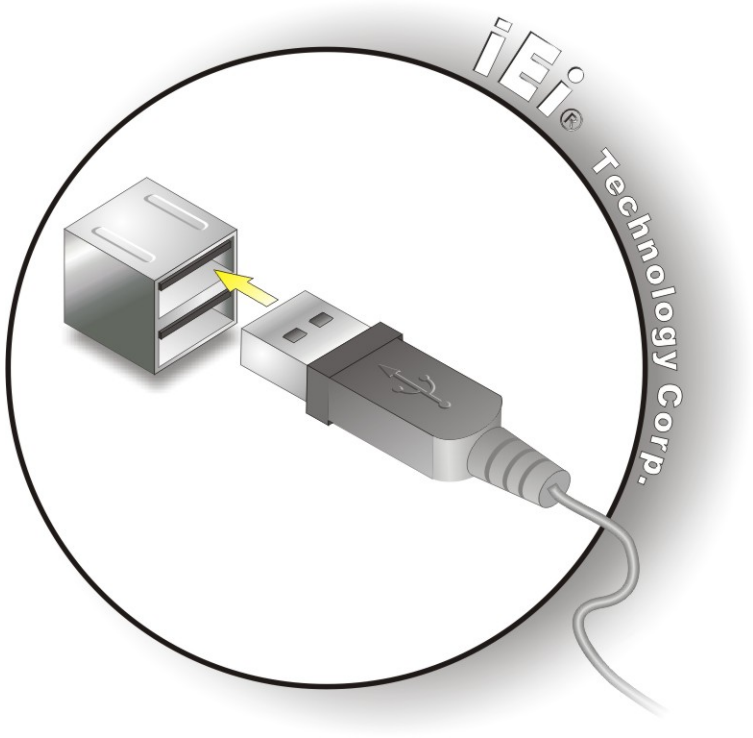


Figure 4-38: USB Device Connection

Step 3: **Insert the device connector.** Once aligned, gently insert the USB device connector into the onboard connector.

4.15.6 Parallel Device Connection

The WIDS-51XX has a single female DB-25 connector on the external peripheral interface panel for parallel devices. Follow the steps below to connect a parallel device to the WIDS-51XX.

Step 1: **Locate the DB-25 connector**. The location of the DB-25 connector is shown in **Chapter 3**.

Step 2: **Insert the DB-25 connector**. Insert the DB-25 connector of a parallel device into the DB-25 connector on the external peripheral interface. See Figure 4-39.

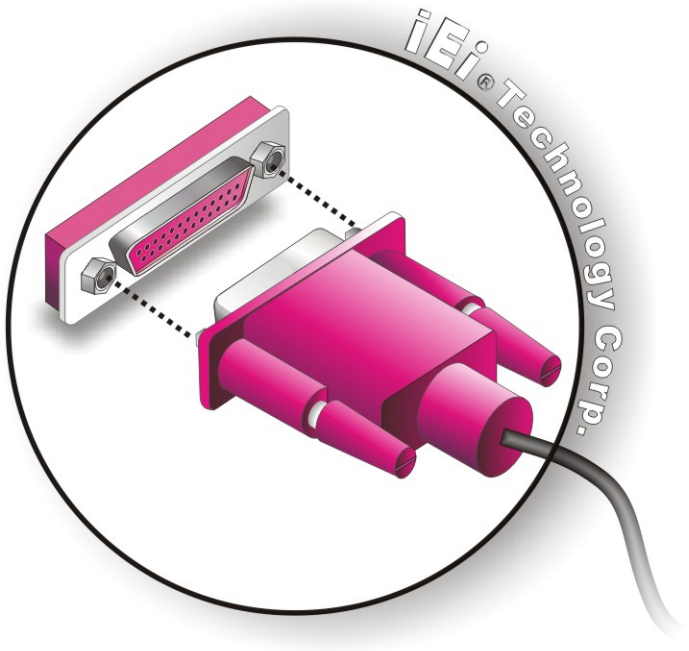


Figure 4-39: Parallel Device Connector

Step 3: **Secure the connector**. Secure the DB-25 connector to the external interface by tightening the two retention screws on either side of the connector.

4.15.7 VGA Monitor Connection

The WIDS-51XX has a single female DB-15 connector on the external peripheral interface panel. The DB-15 connector is connected to a CRT or VGA monitor. To connect a monitor to the WIDS-51XX, please follow the instructions below.

Step 1: **Locate the female DB-15 connector**. The location of the female DB-15 connector is shown in **Chapter 3**.

Step 2: **Align the VGA connector**. Align the male DB-15 connector on the VGA screen cable with the female DB-15 connector on the external peripheral interface.

Step 3: **Insert the VGA connector** Once the connectors are properly aligned with the insert the male connector from the VGA screen into the female connector on the WIDS-51XX. See **Figure 4-40**.

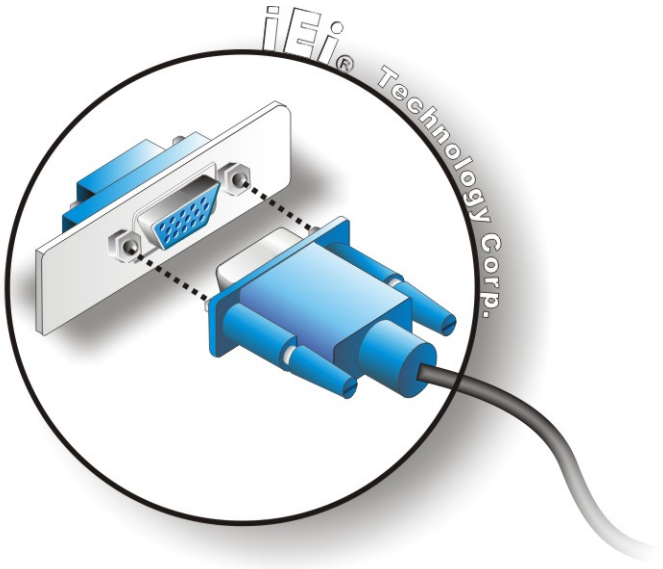


Figure 4-40: VGA Connector

Step 4: **Secure the connector**. Secure the DB-15 VGA connector from the VGA monitor to the external interface by tightening the two retention screws on either side of the connector.

Chapter

5

AMI BIOS Setup

5.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

5.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

Key	Function
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

5.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, clear CMOS defaults.

5.1.5 BIOS Menu Bar

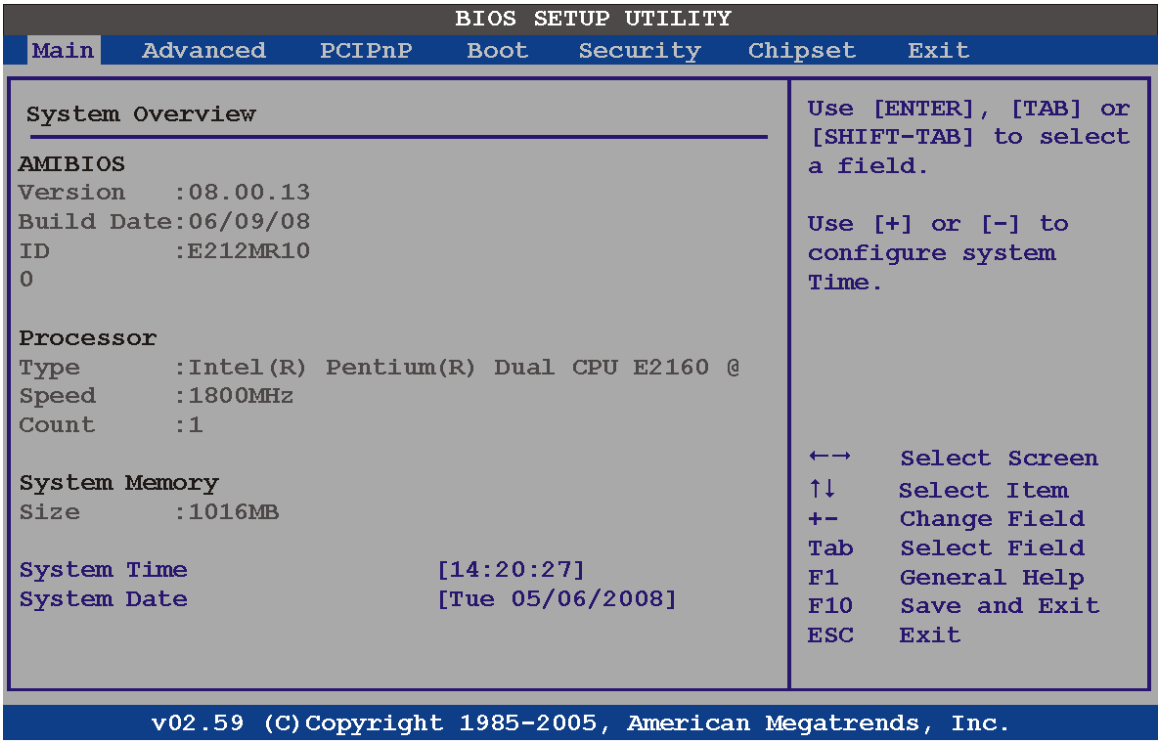
The **menu bar** on top of the BIOS screen has the following main items:

- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- AMI BIOS: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- Processor: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed
  - **Count**: The number of CPUs on the motherboard

- System Memory: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The **System Overview** field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

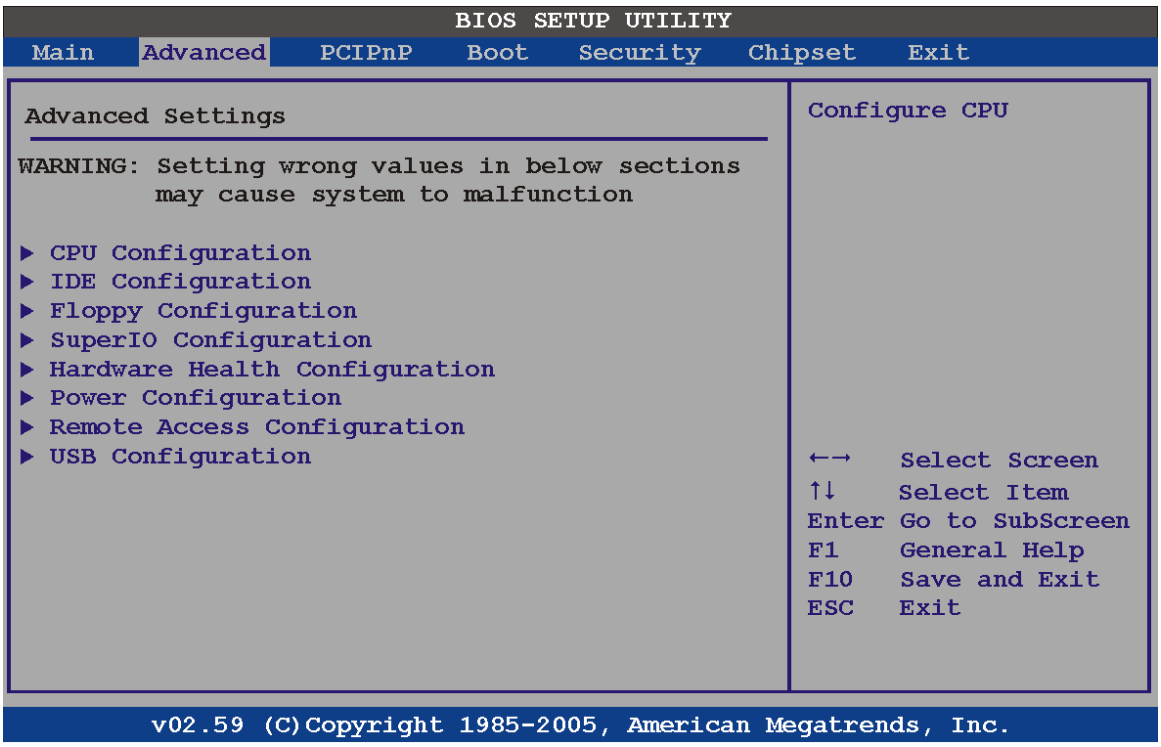
5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

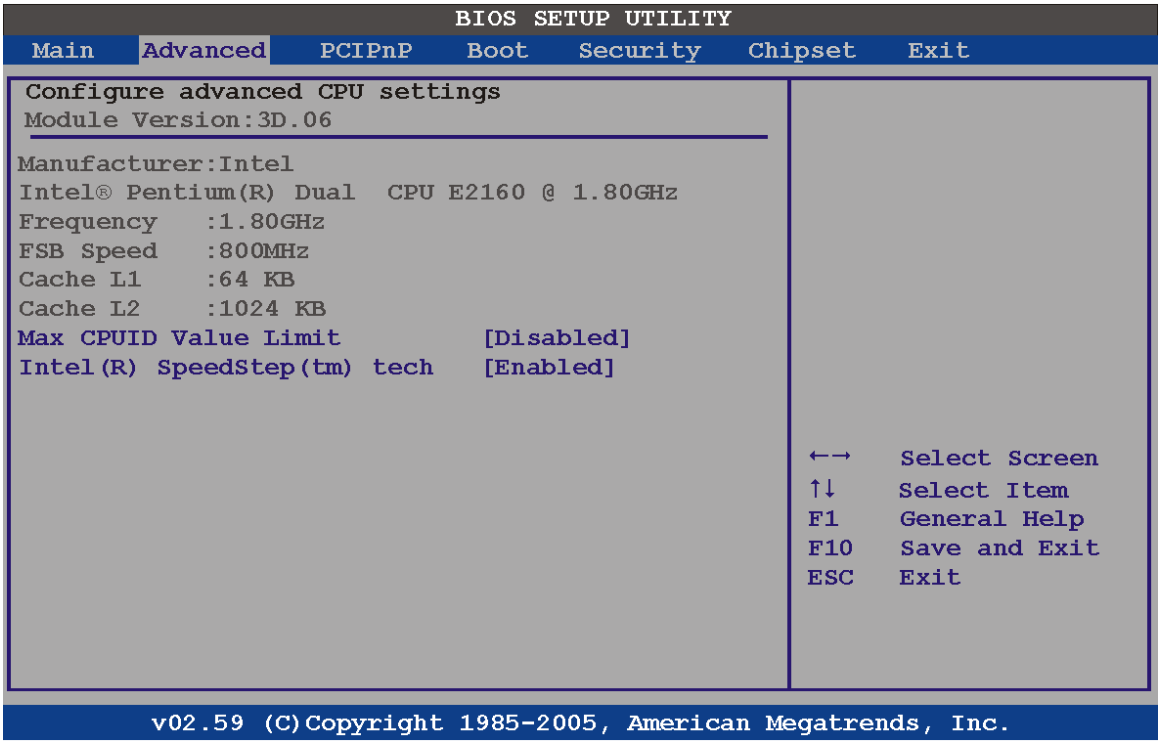
5.3.1 CPU Configuration 93
5.3.2 IDE Configuration 95
5.3.3 Floppy Configuration 102
5.3.4 Super IO Configuration 103
5.3.5 Hardware Health Configuration 108
5.3.6 Power Configuration 113
5.3.7 Remote Access Configuration 118
5.3.8 USB Configuration 121



BIOS Menu 2: Advanced

5.3.1 CPU Configuration

Use the CPU Configuration menu (BIOS Menu 3) to view detailed CPU specifications and configure the CPU.



BIOS Menu 3: CPU Configuration

The CPU Configuration menu (BIOS Menu 3) lists the following CPU details:

- Manufacturer: Lists the name of the CPU manufacturer
- Brand String: Lists the brand name of the CPU being used
- Frequency: Lists the CPU processing speed
- FSB Speed: Lists the FSB speed
- Cache L1: Lists the CPU L1 cache size
- Cache L2: Lists the CPU L2 cache size

➔ **Max CPUID Value Limit [Disabled]**

The Max CPUID Value Limit option to allow an older operating system such as Windows 95 or Windows 98 to work with Pentium® 4 processors with Hyper-Threading Technology

(HTT). If the operating system recognizes the installed processor, then this option should be kept in the default **Disabled** setting.

➔	**Disabled**	**DEFAULT**	CPUID is reported in full.
➔	**Enabled**		Limits the maximum CPUID to 30h.

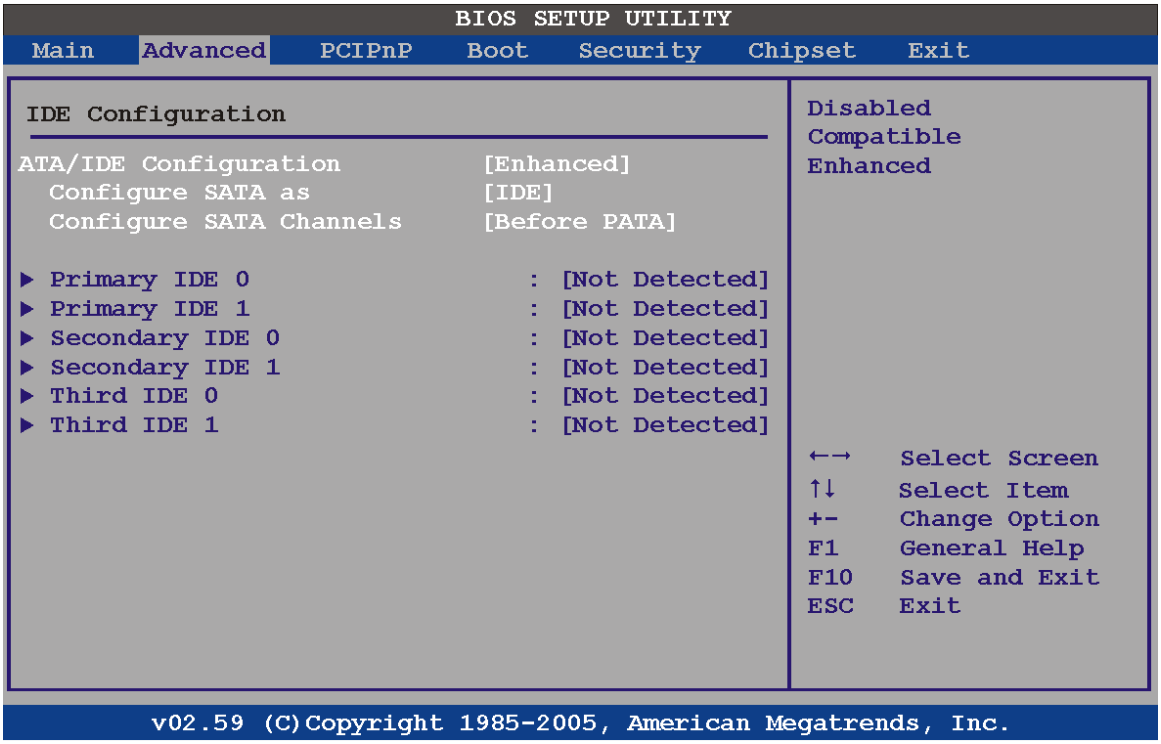
➔ **Intel® SpeedStep® Technology [Enabled]**

The Intel® SpeedStep® Technology option allows the processor to use SpeedStep® if the processor supports it.

➔	**Disabled**		SpeedStep® is always disabled
➔	**Enabled**	**DEFAULT**	SpeedStep® is enabled if supported by the processor

5.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
IDE Configuration
ATA/IDE Configuration [Enhanced]
Configure SATA as [IDE]
Configure SATA Channels [Before PATA]
▶ Primary IDE 0 : [Not Detected]
▶ Primary IDE 1 : [Not Detected]
▶ Secondary IDE 0 : [Not Detected]
▶ Secondary IDE 1 : [Not Detected]
▶ Third IDE 0 : [Not Detected]
▶ Third IDE 1 : [Not Detected]
Disabled
Compatible
Enhanced
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.59 (C)Copyright 1985-2005, American Megatrends, Inc.

BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Enhanced]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. Some legacy OS do not support this mode.

➔ **Configure SATA as [IDE]**

The "Configure SATA as" option sets the configuration of the SATA ports.

➔ **IDE** **DEFAULT** The SATA drives are configured as IDE devices and no enhanced functions are available

➔ **Configure SATA Channels [IDE]**

The "Configure SATA Channels" option sets the order in which the IDE devices are configured.

➔ **Before PATA** **DEFAULT** The SATA drives are configured before the PATA drives

➔ **Behind PATA** The SATA drives are configured after the PATA drives

➔ **Legacy IDE Channels [PATA Pri, SATA Sec]**

➔ **SATA Only** Only the SATA drives are enabled.

➔ **PATA Pri, SATA Sec** **DEFAULT** The IDE drives are enabled on the Primary IDE channel. The SATA drives are enabled on the Secondary IDE channel.

➔ **PATA Pri., PATA Sec** The IDE drives are enabled on the primary and secondary IDE channels. SATA drives are disabled.

➔ **PATA Only** Only the PATA drives are enabled.

➔ **IDE Master and IDE Slave**

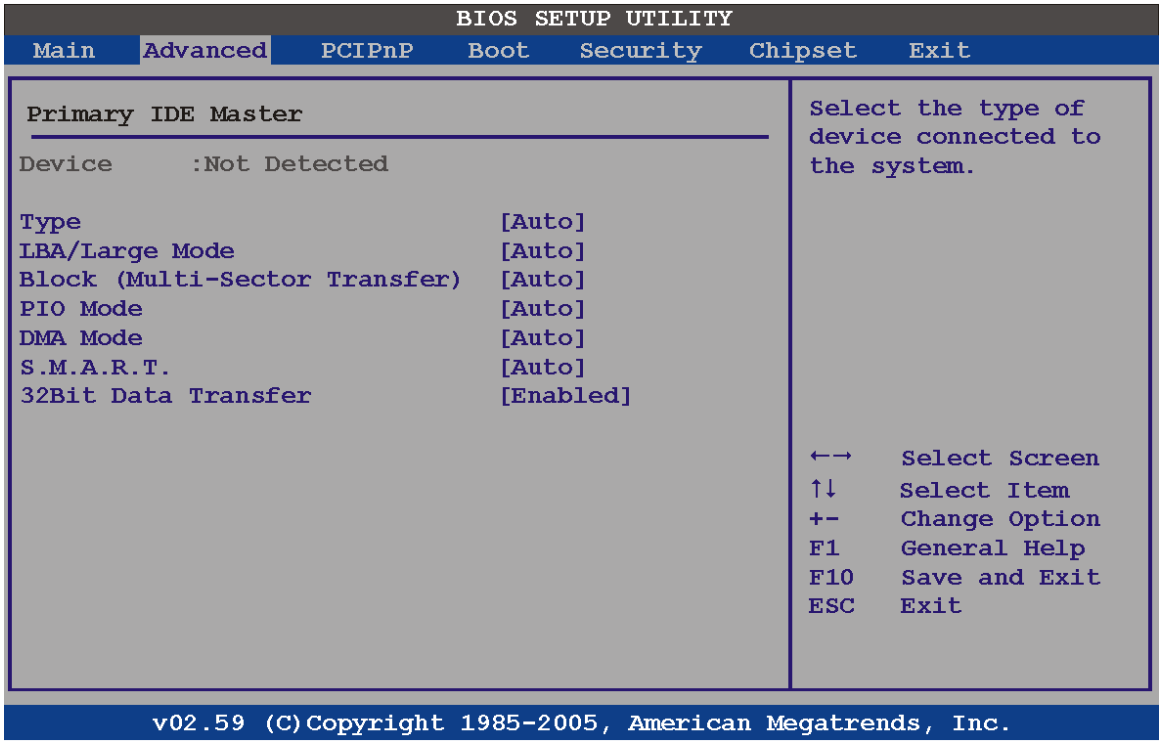
When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 5.3.2.1** appear.

5.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ **Auto-Detected Drive Parameters**

The “grayed-out” items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- PIO Mode: Indicates the PIO mode of the installed device.
- DMA Mode: Indicates the highest DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.
- 32Bit Data Transfer: Enables 32-bit data transfer.

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed**		BIOS is prevented from searching for an IDE disk drive on the specified channel.
➔ **Auto**	**DEFAULT**	The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.
➔ **CD/DVD**		The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.

➔ **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

ZIP

LS-120

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

- **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.
- **0** PIO mode 0 selected with a maximum transfer rate of 3.3 MB/s
- **1** PIO mode 1 selected with a maximum transfer rate of 5.2 MB/s
- **2** PIO mode 2 selected with a maximum transfer rate of 8.3 MB/s
- **3** PIO mode 3 selected with a maximum transfer rate of 11.1 MB/s
- **4** PIO mode 4 selected with a maximum transfer rate of 16.6 MB/s

  (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

- **Auto** **DEFAULT** BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.
- **SWDMA0** Single Word DMA mode 0 selected with a maximum data transfer rate of 2.1 MB/s
- **SWDMA1** Single Word DMA mode 1 selected with a maximum data transfer rate of 4.2 MB/s
- **SWDMA2** Single Word DMA mode 2 selected with a maximum data transfer rate of 8.3 MB/s
- **MWDMA0** Multi Word DMA mode 0 selected with a maximum data transfer rate of 4.2 MB/s
- **MWDMA1** Multi Word DMA mode 1 selected with a maximum data transfer rate of 13.3 MB/s
- **MWDMA2** Multi Word DMA mode 2 selected with a maximum data transfer rate of 16.6 MB/s
- **UDMA1** Ultra DMA mode 0 selected with a maximum data transfer rate of 16.6 MB/s

- ➔ **UDMA1** Ultra DMA mode 1 selected with a maximum data transfer rate of 25 MB/s
- ➔ **UDMA2** Ultra DMA mode 2 selected with a maximum data transfer rate of 33.3 MB/s
- ➔ **UDMA3** Ultra DMA mode 3 selected with a maximum data transfer rate of 44 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA4** Ultra DMA mode 4 selected with a maximum data transfer rate of 66.6 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)
- ➔ **UDMA5** Ultra DMA mode 5 selected with a maximum data transfer rate of 99.9 MB/s (To use this mode, it is required that an 80-conductor ATA cable is used.)

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

- ➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.
- ➔ **Disabled** Prevents BIOS from using the HDD SMART feature.
- ➔ **Enabled** Allows BIOS to use the HDD SMART feature

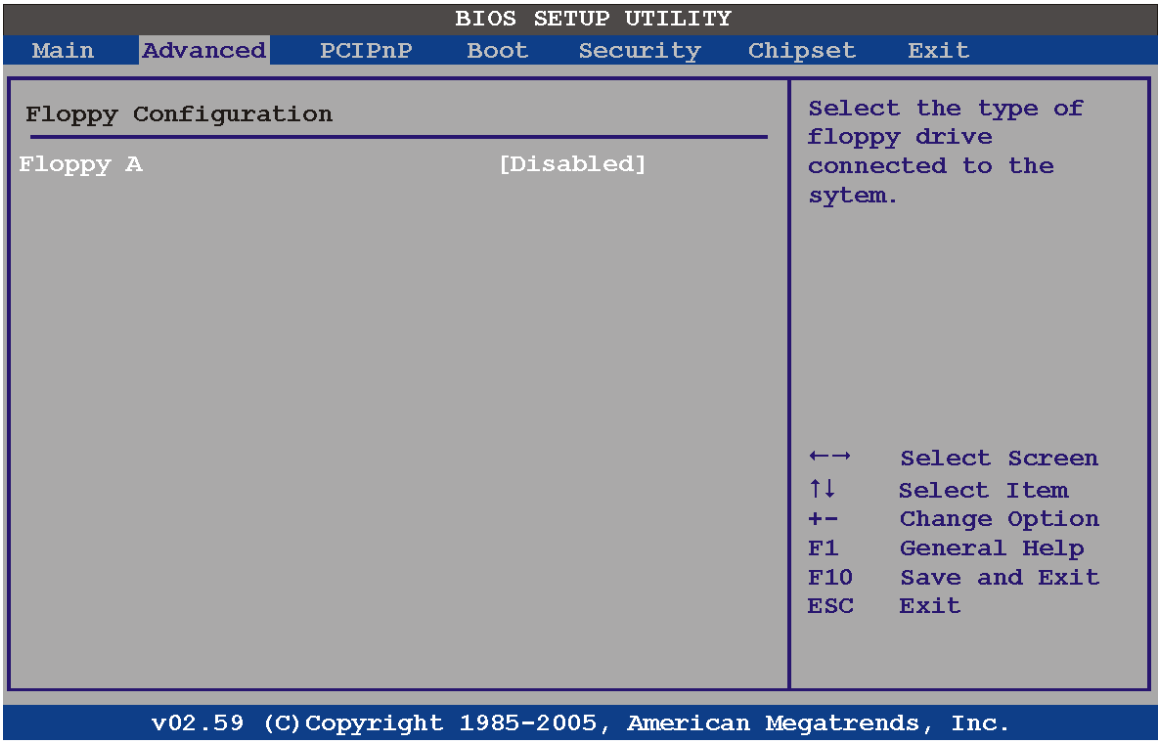
➔ **32Bit Data Transfer [Enabled]**

Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

- ➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.
- ➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

5.3.3 Floppy Configuration

Use the **Floppy Configuration menu** (BIOS Menu 6) to configure the floppy disk drive connected to the system.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Floppy Configuration
Floppy A [Disabled]
Select the type of floppy drive connected to the sytem.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 6: IDE Master and IDE Slave Configuration

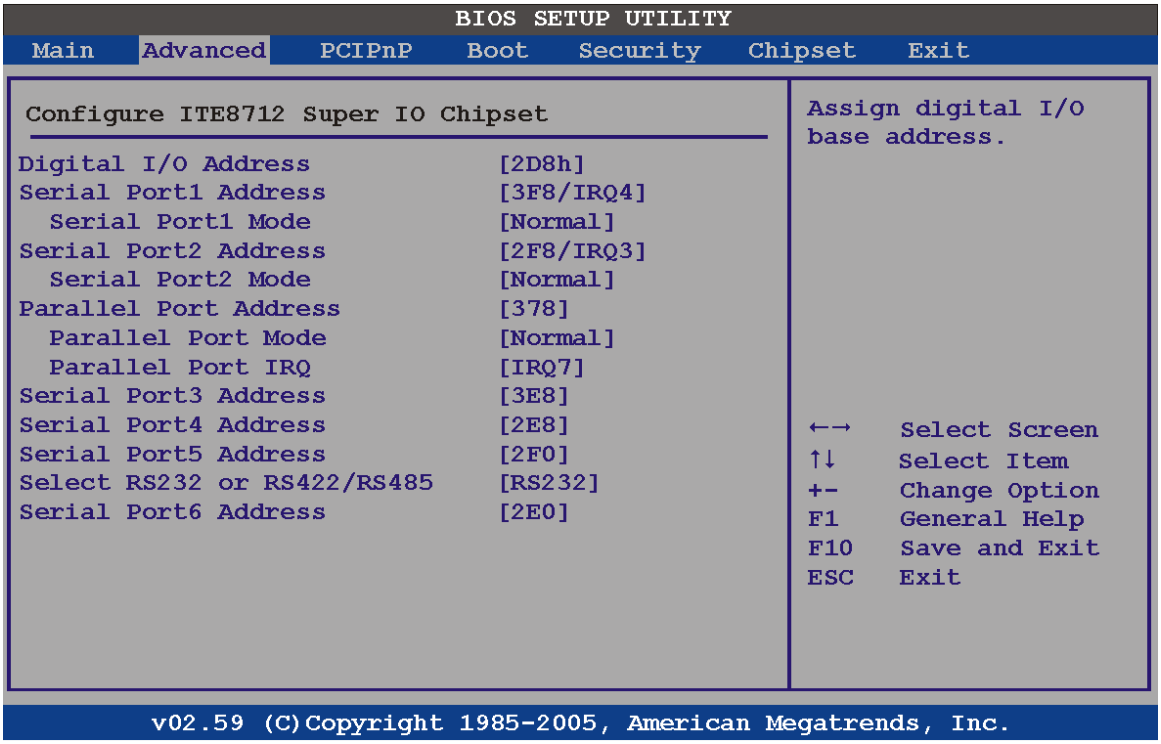
➔ **Floppy A/B**

Use the **Floppy A/B** option to configure the floppy disk drive. Options are listed below:

- Disabled
- 360 KB 51/4”
- 1.2 MB 51/4”
- 720 KB 31/2”
- 1.44 MB 31/2’
- 2.88 MB 31/2”

5.3.4 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 7**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Configure ITE8712 Super IO Chipset
Digital I/O Address [2D8h]
Serial Port1 Address [3F8/IRQ4]
Serial Port1 Mode [Normal]
Serial Port2 Address [2F8/IRQ3]
Serial Port2 Mode [Normal]
Parallel Port Address [378]
Parallel Port Mode [Normal]
Parallel Port IRQ [IRQ7]
Serial Port3 Address [3E8]
Serial Port4 Address [2E8]
Serial Port5 Address [2F0]
Select RS232 or RS422/RS485 [RS232]
Serial Port6 Address [2E0]
Assign digital I/O base address.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 7: Super IO Configuration

➔ **Digital I/O Address [2D8]**

Use the **Digital I/O Address** option to select the digital I/O port base address.

➔ **2C0h**	**DEFAULT**	The digital I/O port address is 2C0h
➔ **2C8h**		The digital I/O port address is 2C8h
➔ **2D0h**		The digital I/O port address is 2D0h
➔ **2D8h**		The digital I/O port address is 2D8h

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

- ➔ **Disabled** — No base address is assigned to Serial Port 1
- ➔ **3F8/IRQ4** **DEFAULT** — Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4
- ➔ **3E8/IRQ4** — Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** — Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

- ➔ **Normal** **DEFAULT** — Serial Port 1 mode is normal
- ➔ **IrDA** — Serial Port 1 mode is IrDA
- ➔ **ASK IR** — Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

- ➔ **Disabled** — No base address is assigned to Serial Port 2
- ➔ **2F8/IRQ3** **DEFAULT** — Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3
- ➔ **3E8/IRQ4** — Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4
- ➔ **2E8/IRQ3** — Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

- ➔ **Normal** **DEFAULT** — Serial Port 2 mode is normal

- ➔ **IrDA** Serial Port 2 mode is IrDA
- ➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [Disabled]**

Use the **Parallel Port Address** option to select the parallel port base address.

- ➔ **Disabled** No base address is assigned to the Parallel Port
- ➔ **378** **DEFAULT** Parallel Port I/O port address is 378
- ➔ **278** Parallel Port I/O port address is 278
- ➔ **3BC** Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

Use the **Parallel Port Mode** option to select the mode the parallel port operates in.

- ➔ **Normal** **DEFAULT** The normal parallel port mode is the standard mode for parallel port operation.
- ➔ **Bi-directional** Parallel port outputs are 8-bits long. Inputs are accomplished by reading 4 of the 8 bits on the status register.
- ➔ **EPP** The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.

➔ **ECP+EPP**		The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode The parallel port is also be compatible with EPP devices described above

➔ **Parallel Port IRQ [IRQ7]**

Use the **Parallel Port IRQ** selection to set the parallel port interrupt address.

➔ **IRQ5**		IRQ5 is assigned as the parallel port interrupt address
➔ **IRQ7**	**DEFAULT**	IRQ7 is assigned as the parallel port interrupt address

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

➔ **Disabled**		No base address is assigned to serial port 3
➔ **3E8**	**DEFAULT**	Serial port 3 I/O port address is 3E8
➔ **2E8**		Serial port 3 I/O port address is 2E8
➔ **2E0**		Serial port 3 I/O port address is 2E0

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

➔ **Disabled**		No base address is assigned to serial port 3
➔ **3E8**		Serial port 4 I/O port address is 3E8
➔ **2E8**	**DEFAULT**	Serial port 4 I/O port address is 2E8
➔ **2E0**		Serial port 4 I/O port address is 2E0

➔ **Serial Port5 Address [2F0]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

➔ **Disabled**		No base address is assigned to serial port 5
➔ **3E8**		Serial port 5 I/O port address is 3E8
➔ **2E8**		Serial port 5 I/O port address is 2E8
➔ **2F0**	**DEFAULT**	Serial port 5 I/O port address is 2F0
➔ **2E0**		Serial port 5 I/O port address is 2E0

➔ **Select RS232 or RS422/485 [RS/232]**

Use the **Select RS232 or RS422/485** option to select the Serial Port 5 signaling mode.

➔ **RS232**	**DEFAULT**	Serial Port 5 signaling mode is RS-232
➔ **RS422/485**		Serial Port 5 signaling mode is RS-422 or RS-485

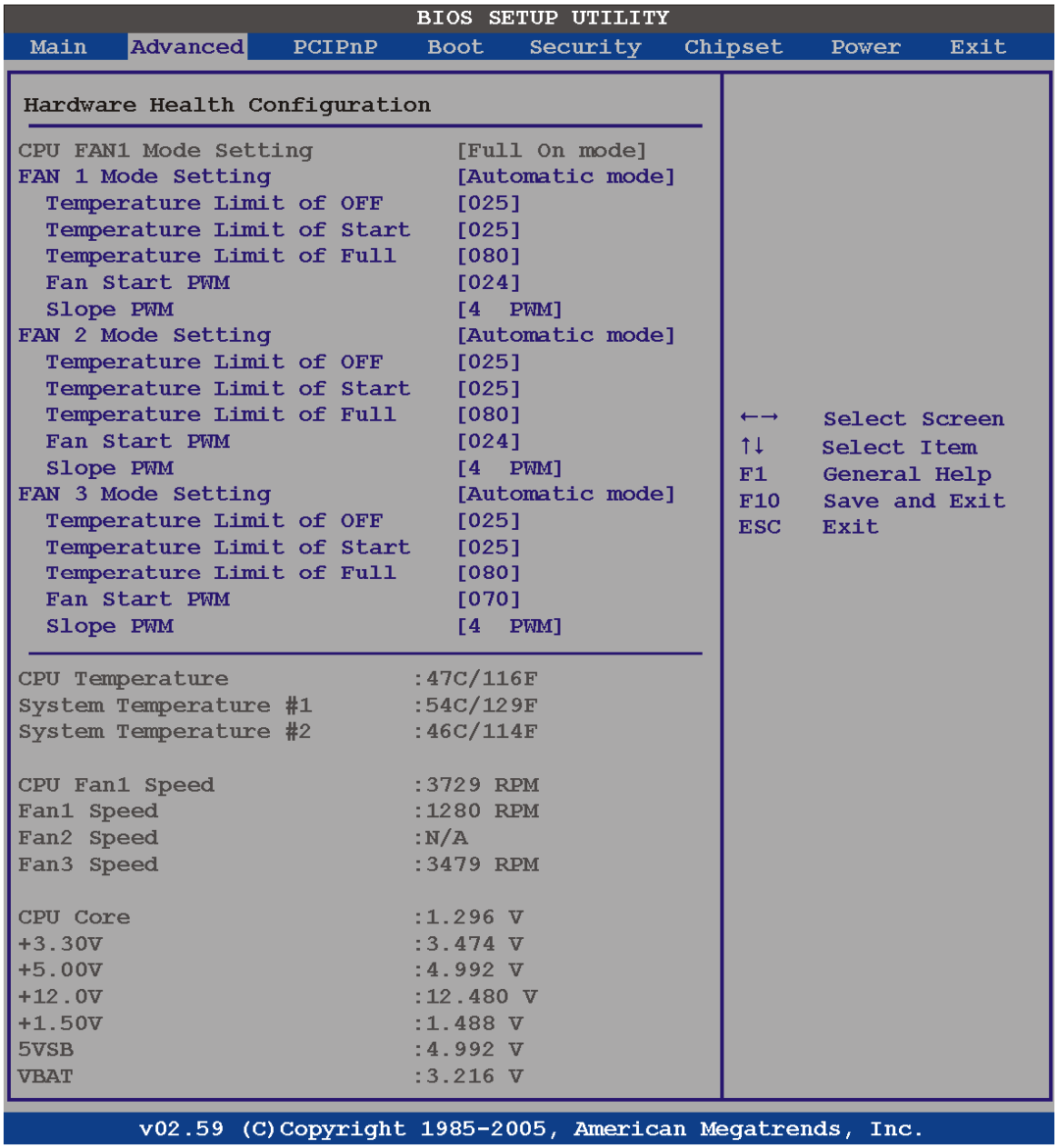
➔ **Serial Port6 Address [2D8]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

➔ **Disabled**		No base address is assigned to serial port 6
➔ **3E8**		Serial port 6 I/O port address is 3E8
➔ **2E8**		Serial port 6 I/O port address is 2E8
➔ **2F0**		Serial port 6I/O port address is 2F0
➔ **2E0**	**DEFAULT**	Serial port 6 I/O port address is 2E0

5.3.5 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 8**) shows the operating temperature, fan speeds and system voltages.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Hardware Health Configuration
CPU FAN1 Mode Setting [Full On mode]
FAN 1 Mode Setting [Automatic mode]
Temperature Limit of OFF [025]
Temperature Limit of Start [025]
Temperature Limit of Full [080]
Fan Start PWM [024]
Slope PWM [4 PWM]
FAN 2 Mode Setting [Automatic mode]
Temperature Limit of OFF [025]
Temperature Limit of Start [025]
Temperature Limit of Full [080]
Fan Start PWM [024]
Slope PWM [4 PWM]
FAN 3 Mode Setting [Automatic mode]
Temperature Limit of OFF [025]
Temperature Limit of Start [025]
Temperature Limit of Full [080]
Fan Start PWM [070]
Slope PWM [4 PWM]
CPU Temperature :47C/116F
System Temperature #1 :54C/129F
System Temperature #2 :46C/114F
CPU Fan1 Speed :3729 RPM
Fan1 Speed :1280 RPM
Fan2 Speed :N/A
Fan3 Speed :3479 RPM
CPU Core :1.296 V
+3.30V :3.474 V
+5.00V :4.992 V
+12.0V :12.480 V
+1.50V :1.488 V
5VSB :4.992 V
VBAT :3.216 V
←→ Select Screen
↑↓ Select Item
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 8: Hardware Health Configuration

➔ **CPU FAN 1 Mode Setting [Full On Mode]**

Use the **CPU FAN 1 Mode Setting** option to configure the CPU fan.

➔ **Full On Mode**	**DEFAULT**	Fan is on all the time

➔ **FAN x Mode Setting [Automatic Mode]**

Use the **FAN x Mode Setting** option to configure the second fan.

➔ **Full On Mode**		Fan is on all the time
➔ **Automatic mode**	**DEFAULT**	Fan is off when the temperature is low enough. Parameters must be set by the user.
➔ **PWM Manually mode**		Pulse width modulation set manually

When the **FAN x Mode Setting** option is in the **Automatic Mode**, the following parameters can be set.

- Temperature Limit of OFF
- Temperature Limit of Start
- Temperature Limit of Full
- Fan Start PWM
- Slope PWM

When the **CPU FAN Mode Setting** option is in the **PWM Manual Mode**, the following parameters can be set.

- CPU Fan PWM control

➔ **Temperature Limit of OFF [025]**

WARNING:

Setting this value too high may cause the fan to stop when the CPU is at a high temperature and therefore cause the system to be damaged.

The **CPU Temp. Limit of OFF** option can only be set if the **FAN x Mode Setting** option is set to **Automatic Mode**. Use the **CPU Temp. Limit of OFF** option to select the CPU temperature at which the cooling fan should automatically turn off. To select a value, select the **CPU Temp. Limit of OFF** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Temperature Limit of Start [025]**

WARNING:

Setting this value too high may cause the fan to start only when the CPU is at a high temperature and therefore cause the system to be damaged.

The **Temperature Limit of Start** option can only be set if the **FAN x Mode Setting** option is set to **Automatic Mode**. Use the **Temperature Limit of Start** option to select the CPU temperature at which the cooling fan should automatically turn on. When the fan starts, it rotates using the starting pulse width modulation (PWM) specified in the **Fan Start PWM** option. To select a value, select the **Temperature Limit of Start** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Temperature Limit of Full [080]**

WARNING:

Setting this value too high may cause the system to become too hot and cause irreparable damage to the system.

The **Temperature Limit of Full** option can only be set if the **FAN x Mode Setting** option is set to **Automatic Mode**. Use the **Temperature Limit of Full** option to select the CPU temperature at which the cooling will reach full speed. To select a value, select the **Temperature Limit of Full** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- Minimum Value: 0°C
- Maximum Value: 127°C

➔ **Fan Start PWM [070]**

The **Fan Start PWM** option can only be set if the **FAN x Mode Setting** option is set to **Automatic Mode**. Use the **Fan Start PWM** option to select the PWM the fan starts to rotate with after the temperature specified in the **Temperature 3 Limit of Start** is exceeded. To select a value, select the **Fan Start PWM** option and enter a decimal number between 000 and 127. The temperature range is specified below.

- PWM Minimum Mode: 0
- PWM Maximum Mode: 127

➔ **Slope PWM [4 PWM]**

The **Slope PWM** option can only be set if the **FAN x Mode Setting** option is set to **Automatic Mode**. Use the **Slope PWM** option to select the linear rate at which the PWM mode increases with respect to an increase in temperature. A list of available options is shown below:

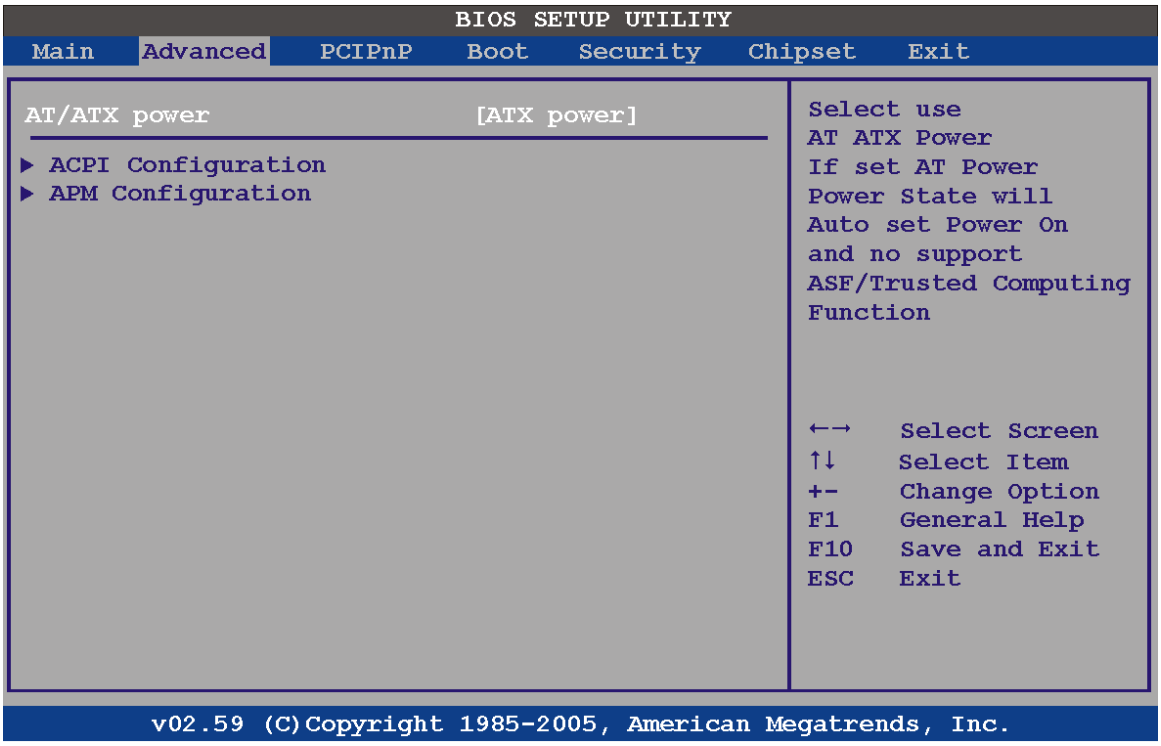
- 0 PWM
- 1 PWM
- 2 PWM
- 4 PWM
- 8 PWM
- 16 PWM
- 32 PWM
- 64 PWM

The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures: The following system temperatures are monitored
  - CPU Temperature
  - System Temperature 1
  - System Temperature 2
- Fan Speeds: The CPU cooling fan speed is monitored.
  - CPU Fan1 Speed
  - Fan 1 Speed
  - Fan 2 Speed
  - Fan 3 Speed
- Voltages: The following system voltages are monitored
  - CPU Core
  - +3.30 V
  - +5.00 V
  - +12.0 V
  - +1.50 V
  - 5 VSB
  - VBAT

5.3.6 Power Configuration

The power configuration menu (BIOS Menu 9) sets the power features options.



BIOS Menu 9: ACPI Configuration

➔ **Power Supply Mode [ATX]**

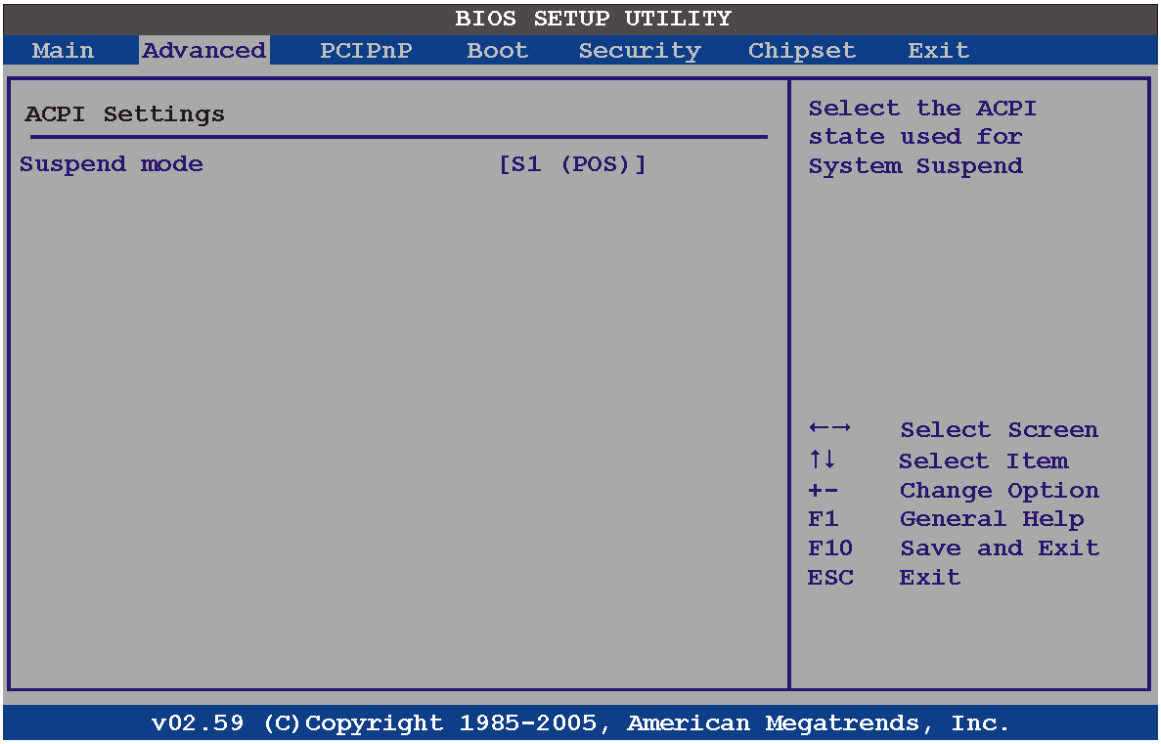
Use the **Power Supply Mode** BIOS option to select the power supply that is connected to the system.

➔ **AT power** An AT power supply is connected to the system and no advanced power management features are enabled.

➔ **ATX power** **DEFAULT** An ATX power supply is connected to the system and the advanced power management features are enabled.

5.3.6.1 ACPI Configuration

The **ACPI Configuration** menu (**BIOS Menu 10**) configures the Advanced Configuration and Power Interface (ACPI) and Power Management (APM) options.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
ACPI Settings
Suspend mode [S1 (POS)]
Select the ACPI state used for System Suspend
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 10: ACPI Configuration

➔ **Suspend Mode [S3(STR)]**

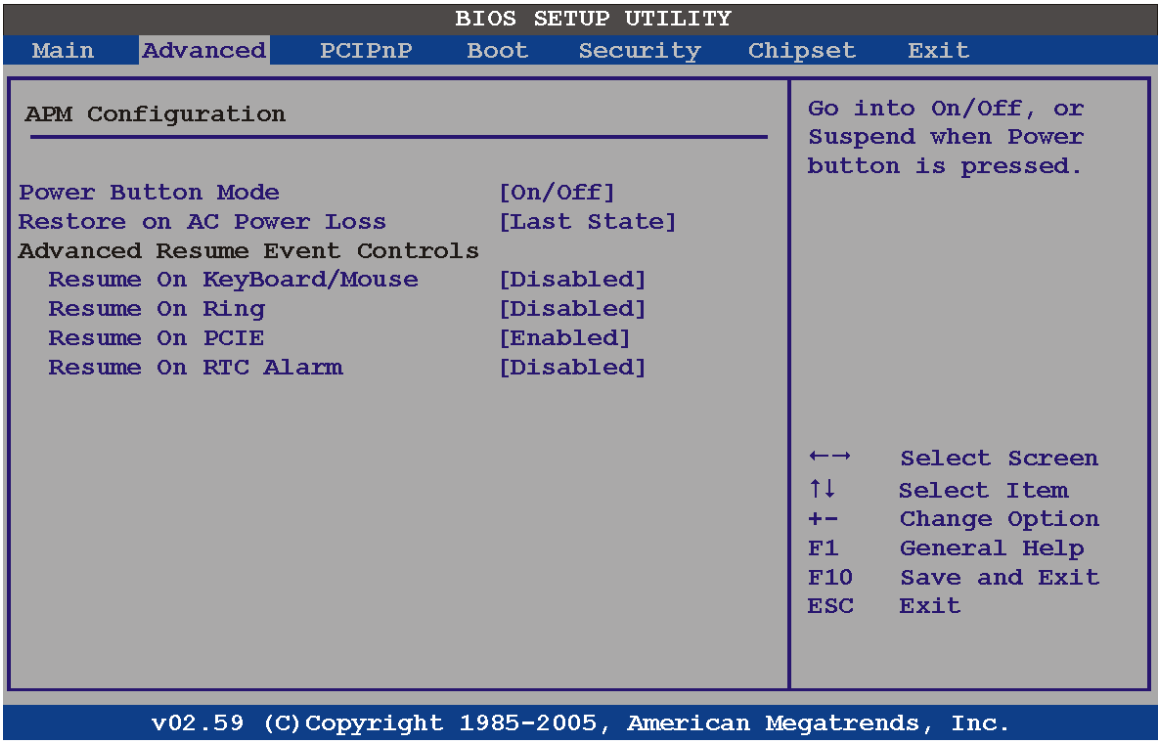
Use the **Suspend Mode** option to specify the sleep state the system enters when it is not being used.

➔ **S1 (POS)** **DEFAULT** The system enters S1(POS) sleep state. The system appears off. The CPU is stopped; RAM is refreshed; the system is running in a low power mode.

➔ **S3 (STR)** The system enter S3(STR) sleep state. The system appears off. The CPU has no power; RAM is in slow refresh; the power supply is in a reduced power mode. This mode is also referred to as “Save To RAM”.

5.3.6.2 APM Configuration

The APM Configuration menu (**BIOS Menu 11**) allows the advanced power management options to be configured.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
APM Configuration
Power Button Mode [On/Off]
Restore on AC Power Loss [Last State]
Advanced Resume Event Controls
Resume On KeyBoard/Mouse [Disabled]
Resume On Ring [Disabled]
Resume On PCIE [Enabled]
Resume On RTC Alarm [Disabled]
Go into On/Off, or Suspend when Power button is pressed.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 11:Advanced Power Management Configuration

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off** **DEFAULT** When the power button is pressed the system is either turned on or off

➔ **Suspend** When the power button is pressed the system goes into suspend mode

➔ **Restore on AC Power Loss [Power Off]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off**		The system remains turned off
➔ **Power On**		The system turns on
➔ **Last State**	**DEFAULT**	The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Resume on Keyboard/Mouse [Disabled]**

Use the **Resume on Keyboard/Mouse** BIOS option to enable activity on either the keyboard or mouse to rouse the system from a suspend or standby state. That is, the system is roused when the mouse is moved or a button on the keyboard is pressed.

➔ **Disabled**	**DEFAULT**	Wake event not generated by activity on the keyboard or mouse
➔ **Enabled**		Wake event generated by activity on the keyboard or mouse

➔ **Resume on Ring [Disabled]**

Use the **Resume on Ring** BIOS option to enable activity on the RI (ring in) modem line to rouse the system from a suspend or standby state. That is, the system will be roused by an incoming call on a modem.

➔ **Disabled**	**DEFAULT**	Wake event not generated by an incoming call
➔ **Enabled**		Wake event generated by an incoming call

➔ **Resume on PCIE [Enabled]**

The **Resume on PCI-Express WAKE#** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PCI-Express bus.

➔ **Disabled**		Wake event not generated by PCI-Express activity
➔ **Enabled**	**DEFAULT**	Wake event generated by PCI-Express activity

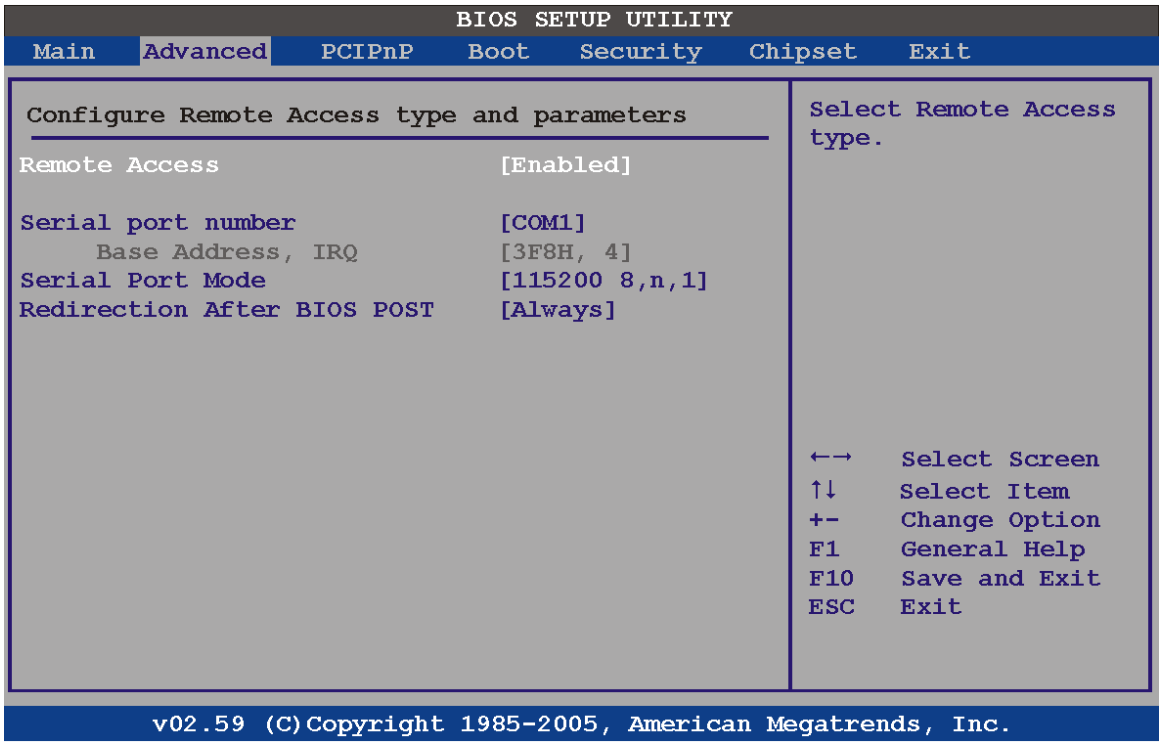
➔ **Resume On RTC Alarm [Disabled]**

Use the **Resume On RTC Alarm** option to specify the time the system should be roused from a suspended state.

➔ **Disabled**	**DEFAULT**	The real time clock (RTC) cannot generate a wake event
➔ **Enabled**		If selected, the following appears with values that can be selected: **RTC Alarm Date (Days)** **System Time** After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

5.3.7 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 12**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Configure Remote Access type and parameters
Remote Access [Enabled]
Serial port number [COM1]
Base Address, IRQ [3F8H, 4]
Serial Port Mode [115200 8,n,1]
Redirection After BIOS POST [Always]
Select Remote Access type.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 12: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** **DEFAULT** Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

Serial Port Number
Serial Port Mode
Flow Control
Redirection after BIOS POST
Terminal Type
VT-UTF8 Combo Key Support

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows to select the serial port used for remote access.

➔ **COM1** **DEFAULT** System is remotely accessed through COM1

➔ **COM2** System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h,4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 DEFAULT
- 57600 8,n,1
- 38400 8,n,1
- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

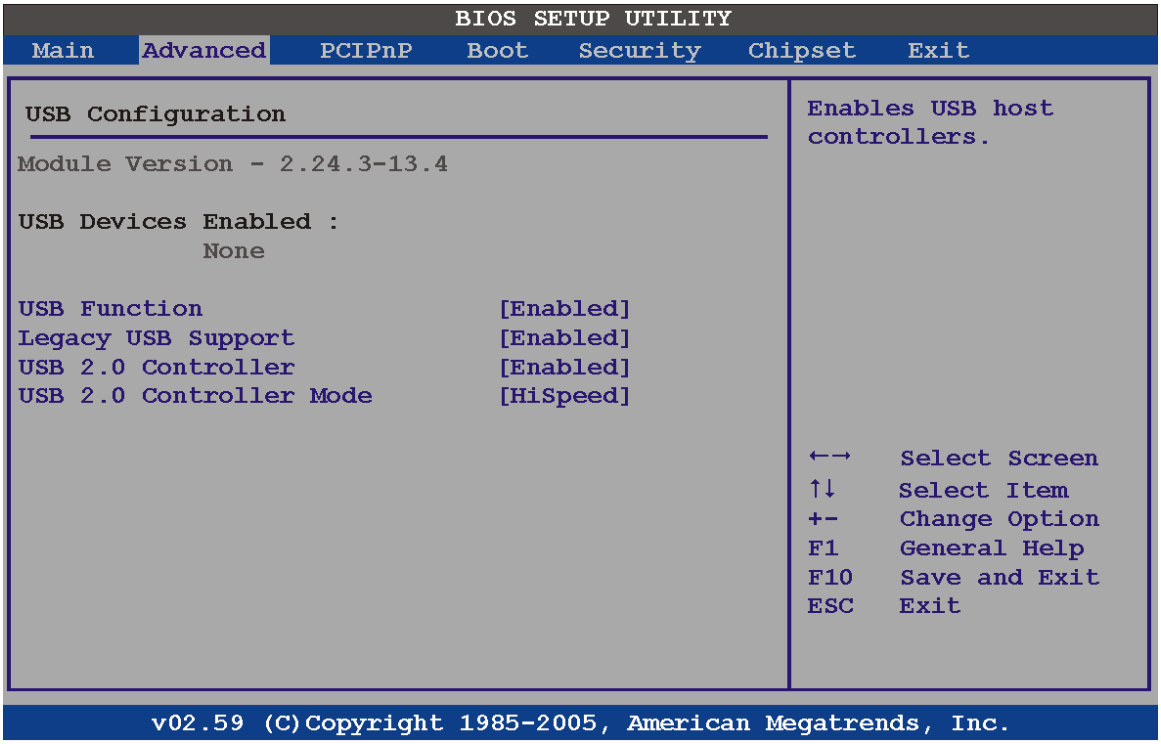
➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

5.3.8 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 13**) to read USB configuration information and configure the USB settings.



BIOS Menu 13: USB Configuration

➔ **USB Configuration**

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable USB function support.

➔ **Disabled**		USB function support disabled
➔ **Enabled**	**DEFAULT**	USB function support enabled

➔ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

➔ **Disabled**		USB 2.0 controller disabled
➔ **Enabled**	**DEFAULT**	USB 2.0 controller enabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled**		Legacy USB support disabled
➔ **Enabled**	**DEFAULT**	Legacy USB support enabled
➔ **Auto**		Legacy USB support disabled if no USB devices are connected

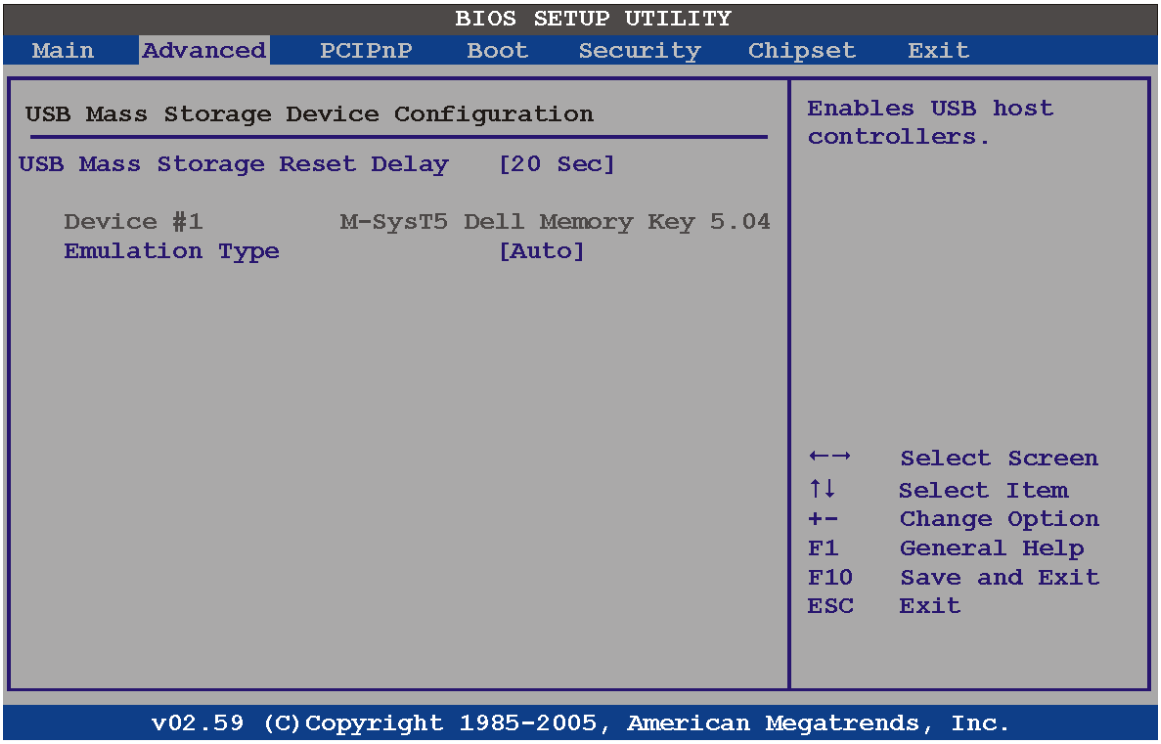
➔ **USB 2.0 Controller Mode [FullSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed**	**DEFAULT**	The controller is capable of operating at 12 Mb/s
➔ **HiSpeed**		The controller is capable of operating at 480 Mb/s

5.3.8.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (**BIOS Menu 14**) to configure USB mass storage class devices.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #1 M-SysT5 Dell Memory Key 5.04
Emulation Type [Auto]
Enables USB host controllers.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 14: USB Mass Storage Device Configuration

➔ **USB Mass Storage Reset Delay [20 Sec]**

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

➔ **10 Sec**		POST waits 10 seconds for the USB mass storage device after the start unit command.
➔ **20 Sec**	**DEFAULT**	POST waits 20 seconds for the USB mass storage device after the start unit command.
➔ **30 Sec**		POST waits 30 seconds for the USB mass storage device after the start unit command.

➔ **40 Sec** POST waits 40 seconds for the USB mass storage device after the start unit command.

➔ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

➔ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

➔ **Auto** **DEFAULT** BIOS auto-detects the current USB.

➔ **Floppy** The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.

➔ **Forced FDD** Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.

➔ **Hard Disk** Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM**

Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

5.4 PCI/PnP

Use the **PCI/PnP** menu (**BIOS Menu 15**) to configure advanced PCI and PnP settings.

WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.

```
                        BIOS SETUP UTILITY
  Main    Advanced    PCIPnP    Boot    Security    Chipset    Exit

 Advanced PCI/PnP Settings                  | Available: Specified
                                            | IRQ is available to
 IRQ3                        [Reserved]     | be use by PCI/PnP
 IRQ4                        [Reserved]     | devices.
 IRQ5                        [Available]    | Reserved: Specified
 IRQ7                        [Available]    | IRQ is reserved for
 IRQ9                        [Available]    | use by legacy ISA
 IRQ10                       [Reserved]     | devices.
 IRQ11                       [Available]    |
 IRQ14                       [Available]    |
 IRQ15                       [Available]    |
                                            |
 DMA Channel 0               [Available]    | ←→   Select Screen
 DMA Channel 1               [Available]    | ↑↓   Select Item
 DMA Channel 3               [Available]    | +-   Change Option
 DMA Channel 5               [Available]    | F1   General Help
 DMA Channel 6               [Available]    | F10  Save and Exit
 DMA Channel 7               [Available]    | ESC  Exit
                                            |
 Reserved Memory Size        [Disabled]     |

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```

BIOS Menu 15: PCI/PnP Configuration

➔ **IRQ# [Available]**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

➔ **Available**	**DEFAULT**	The specified IRQ is available to be used by PCI/PnP devices
➔ **Reserved**		The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0
- DM Channel 1
- DM Channel 3

- DM Channel 5
- DM Channel 6
- DM Channel 7

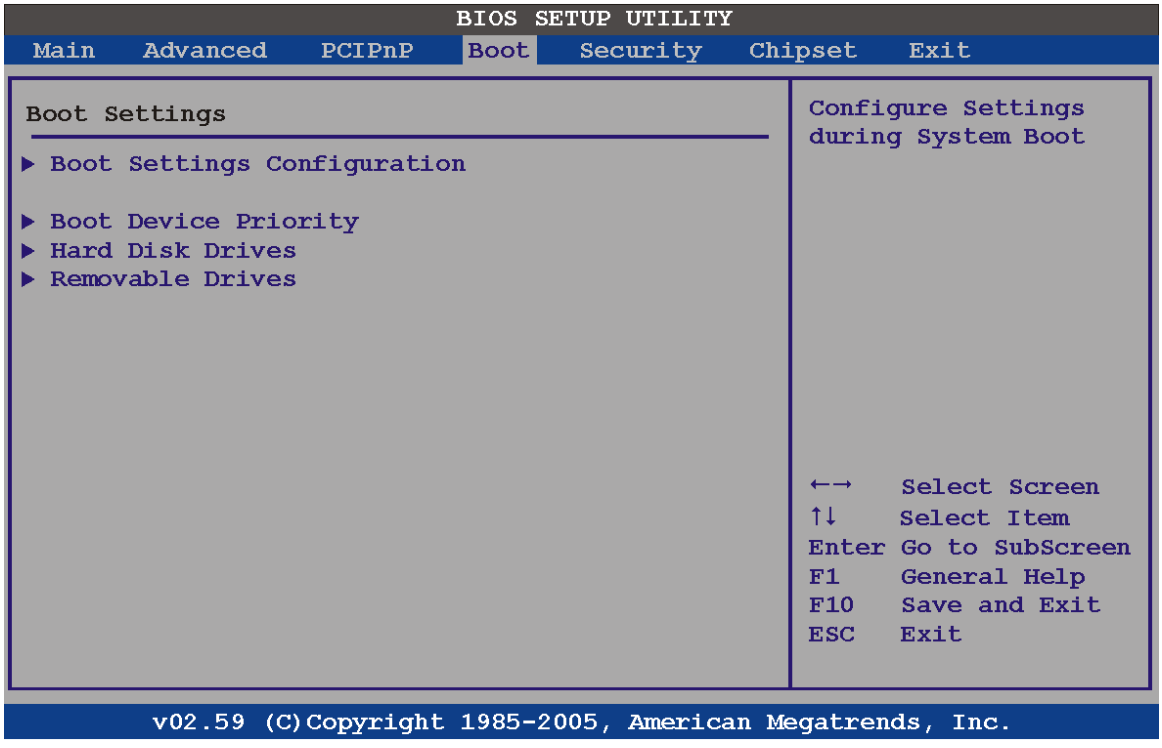
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔	**Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔	**16K**		16 KB reserved for legacy ISA devices
➔	**32K**		32 KB reserved for legacy ISA devices
➔	**64K**		54 KB reserved for legacy ISA devices

5.5 Boot

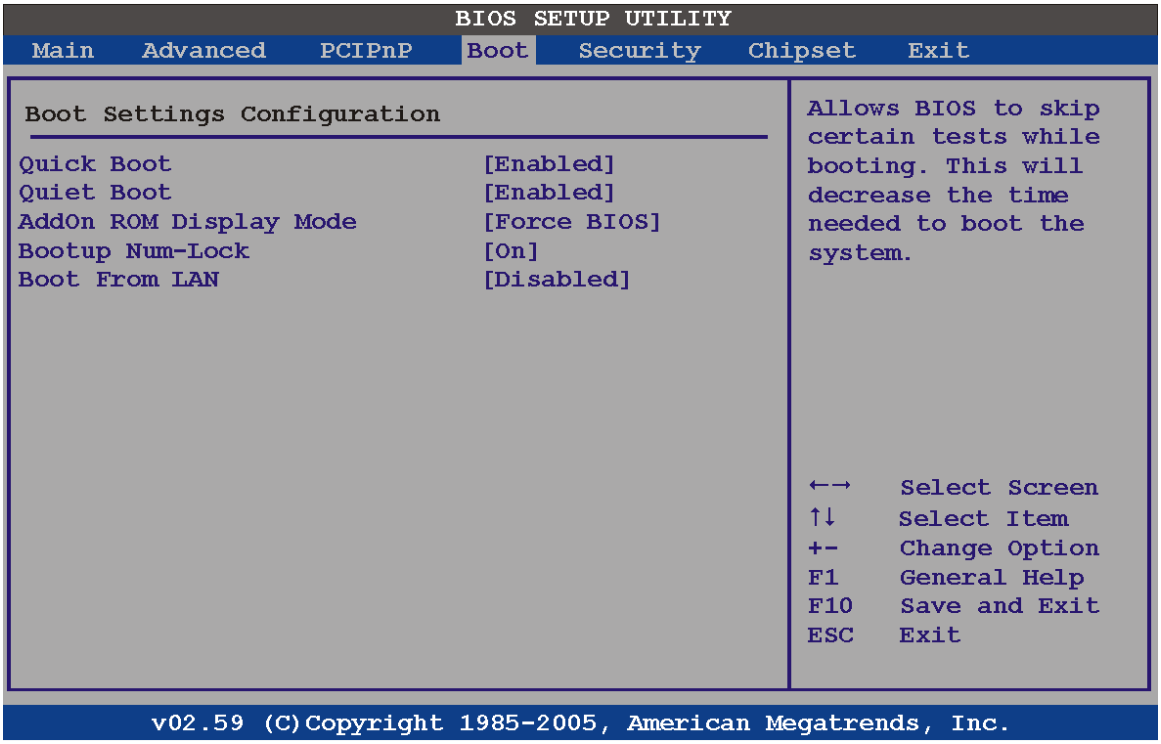
Use the **Boot** menu (**BIOS Menu 16**) to configure system boot options.



BIOS Menu 16: Boot

5.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (BIOS Menu 17) to configure advanced system boot options.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Enabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
Boot From LAN [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 17: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Enabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**	Normal POST messages displayed

➔ **Enabled** **DEFAULT** OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Force BIOS]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS** **DEFAULT** The system forces third party BIOS to display during system boot.

➔ **Keep Current** The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off** Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.

➔ **On** **DEFAULT** Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **Boot From LAN Support [Disabled]**

Use the **BOOT From LAN Support** option to enable the system to be booted from a remote system.

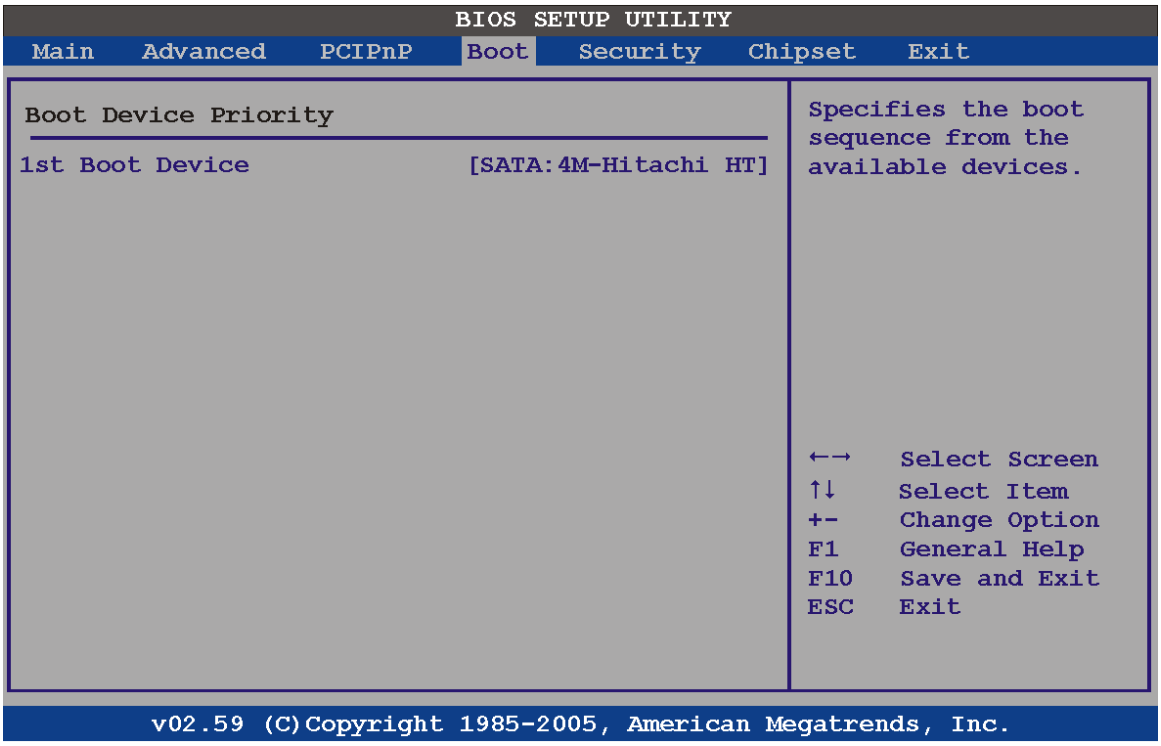
➔ **Disabled** **DEFAULT** Cannot be booted from a remote system through the LAN

➔ **Enabled** **DEFAULT** Can be booted from a remote system through the LAN

5.5.2 Boot Device Priority

Use the **Boot Device Priority** menu (**BIOS Menu 18**) to specify the boot sequence from the available devices. Possible boot devices may include:

- HDD
- CD/DVD
- USB


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Boot Device Priority
1st Boot Device [SATA:4M-Hitachi HT]
Specifies the boot sequence from the available devices.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 18: Boot Device Priority Settings

5.5.3 Hard Disk Drives

Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs. When the menu is opened, the HDDs connected to the system are listed as shown below:

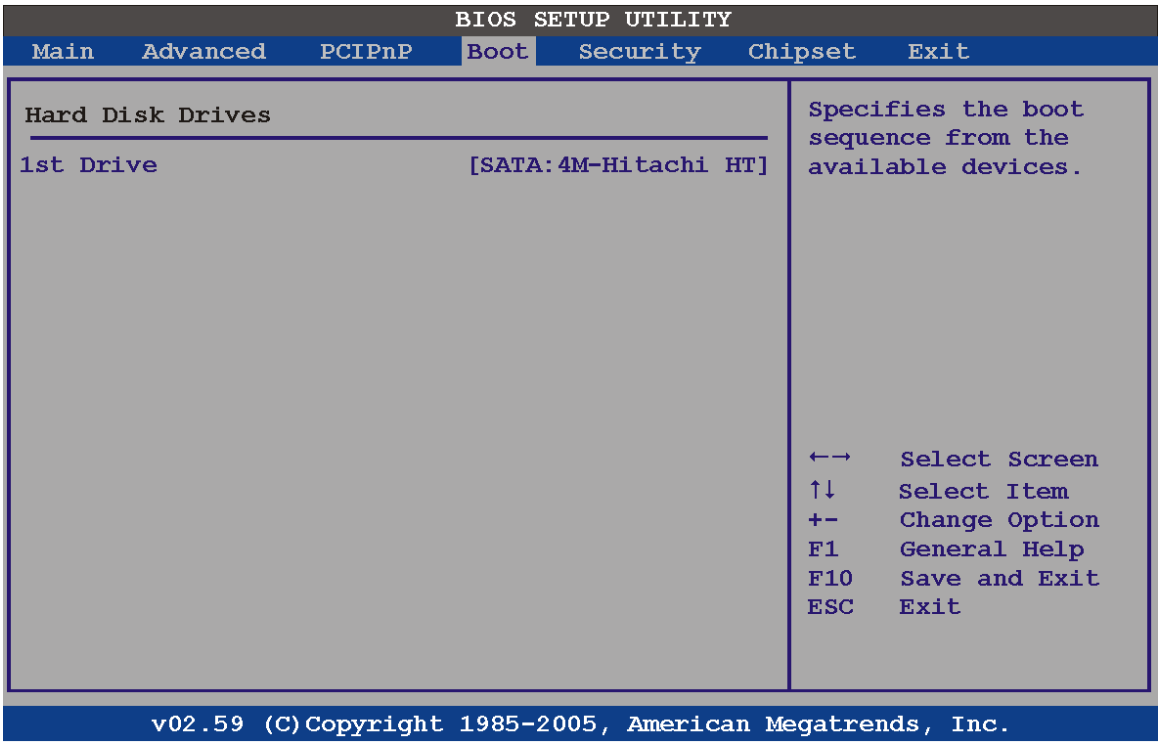
- 1st Drive [HDD: PM-(part number)]
- 2nd Drive [HDD: PS-(part number)]

- 3rd Drive [HDD: SM-(part number)]
- 4th Drive [HDD: SM-(part number)]

NOTE:

Only the drives connected to the system are shown. For example, if only two HDDs are connected only "**1st Drive**" and "**2nd Drive**" are listed.

The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available HDDs is shown. Select the first HDD the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Hard Disk Drives
1st Drive [SATA:4M-Hitachi HT]
Specifies the boot sequence from the available devices.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 19: Hard Disk Drives

5.5.4 CD/DVD Drives

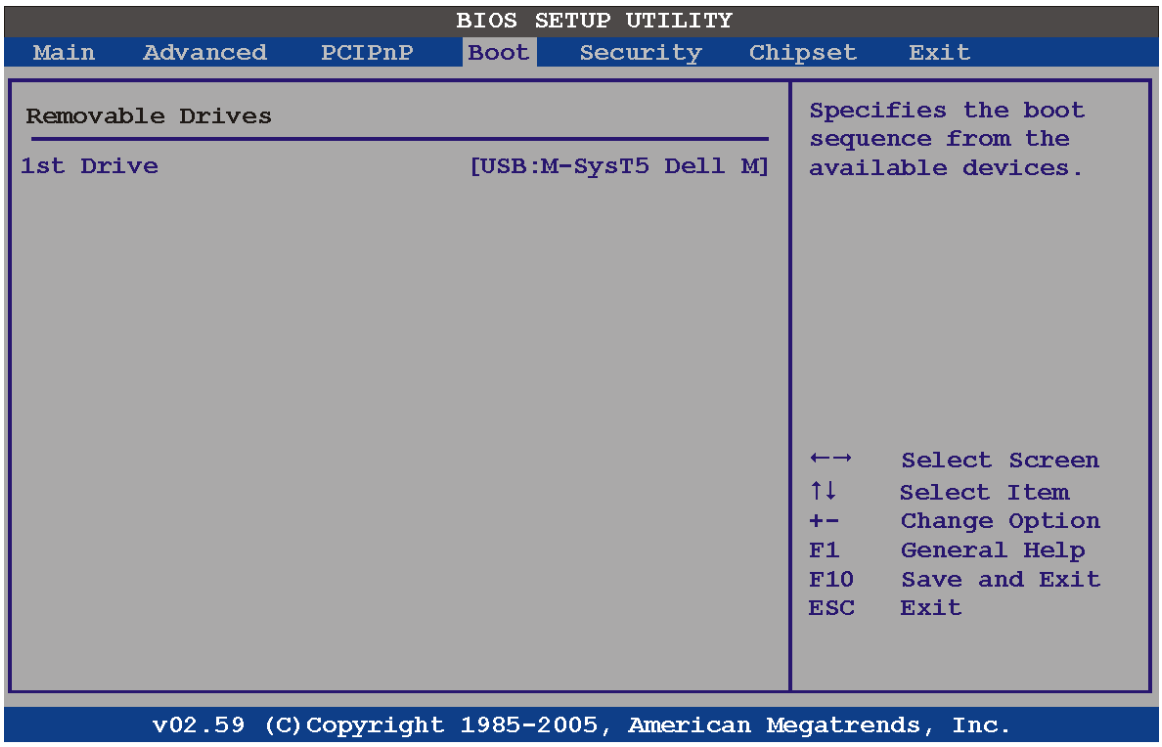
Use the **CD/DVD Drives** menu to specify the boot sequence of the available CD/DVD drives. When the menu is opened, the CD drives and DVD drives connected to the system are listed as shown below:

- 1st Drive [CD/DVD: PM-(part ID)]
- 2nd Drive [HDD: PS-(part ID)]
- 3rd Drive [HDD: SM-(part ID)]
- 4th Drive [HDD: SM-(part ID)]

NOTE:

Only the drives connected to the system are shown. For example, if only two CDs or DVDs are connected only "**1st Drive**" and "**2nd Drive**" are listed.

The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available CD/DVD drives is shown. Select the first CD/DVD drive the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Removable Drives
1st Drive [USB:M-SysT5 Dell M]
Specifies the boot sequence from the available devices.
←→ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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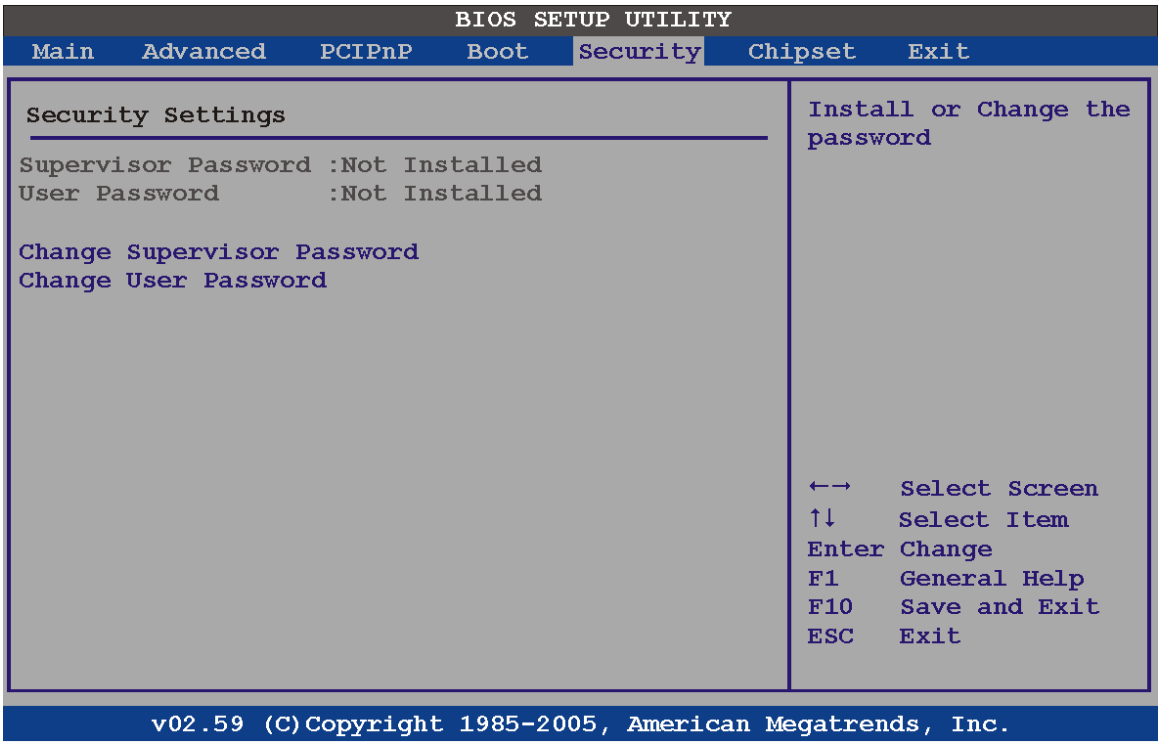
BIOS Menu 20: CD/DVD Drives

5.6 Security

Use the Security menu (**BIOS Menu 21**) to set system and user passwords.



BIOS Menu 21: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

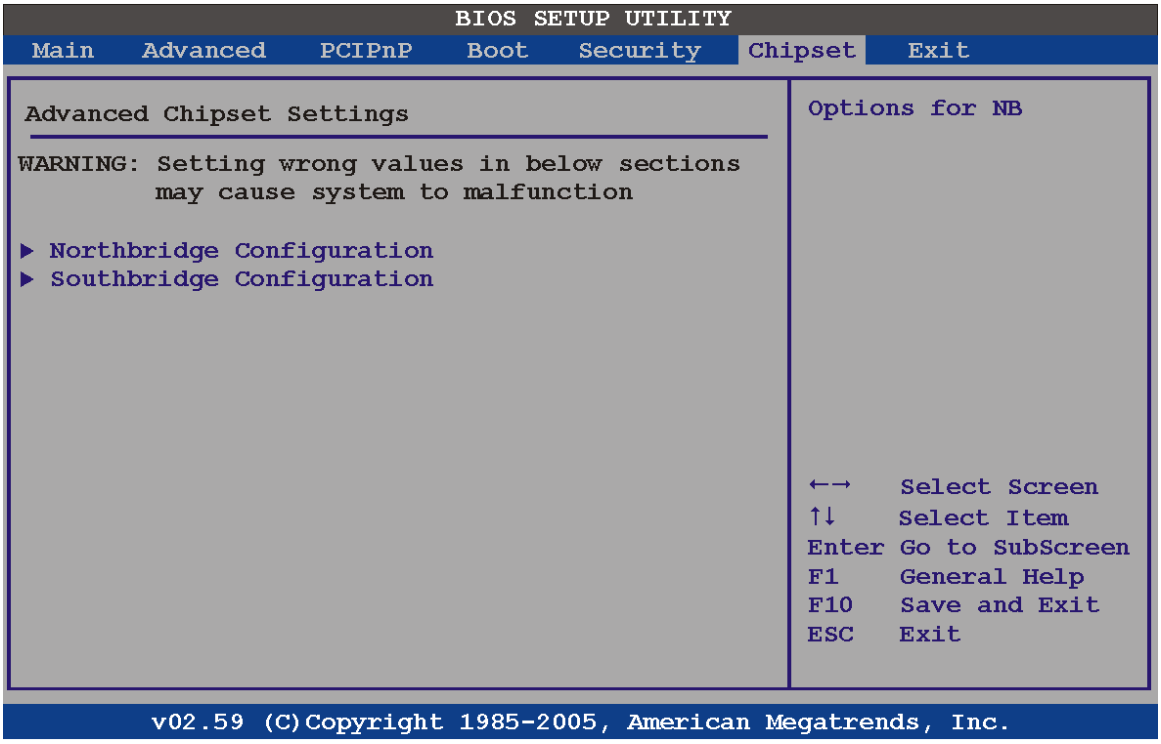
Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

5.7 Chipset

Use the **Chipset** menu (**BIOS Menu 22**) to access the Northbridge and Southbridge configuration menus

WARNING!

Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction
▶ Northbridge Configuration
▶ Southbridge Configuration
Options for NB
←→ Select Screen
↑↓ Select Item
Enter Go to SubScreen
F1 General Help
F10 Save and Exit
ESC Exit
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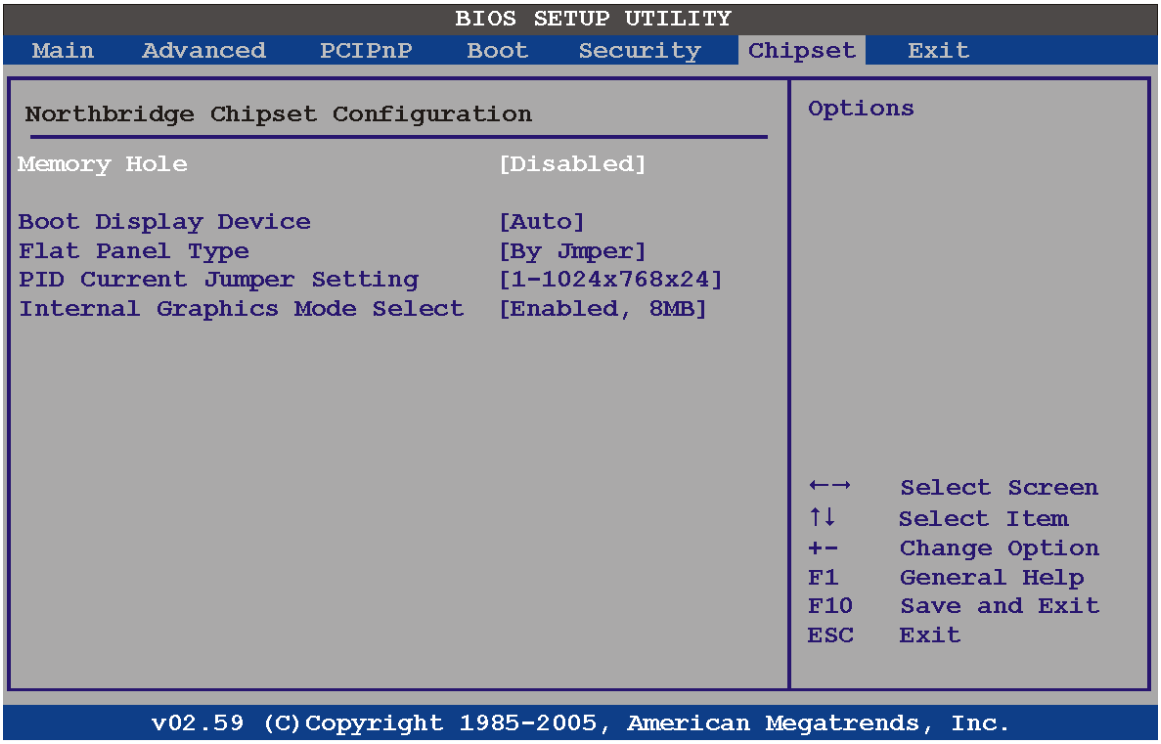
BIOS Menu 22: Chipset

5.7.1 Northbridge Configuration

Use the Northbridge Configuration menu (**BIOS Menu 22**) to configure the Northbridge chipset.



BIOS Menu 23:Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15 MB and 16 MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled**	**DEFAULT**	Memory is not reserved for ISA expansion cards
➔ **15 MB – 16 MB**		Between 15 MB and 16 MB of memory is reserved for ISA expansion cards

➔ **Boot Display Device**

Use the **Boot Display Device** option to select the display device used by the system when it boots. Configuration options are listed below.

- Auto
- CRT - Default
- TV
- LFP
- CRT + LFP

➔ **Flat Panel Type [By Jumper]**

Use the **Flat Panel Type** is set using the onboard jumper settings. The jumper settings can be found in the Installation and Configuration chapter.

➔ **PID Current Jumper Setting [1-1024x768x24]**

The **PID Current Jumper Setting** shows the current setting of the flat panel resolution jumper.

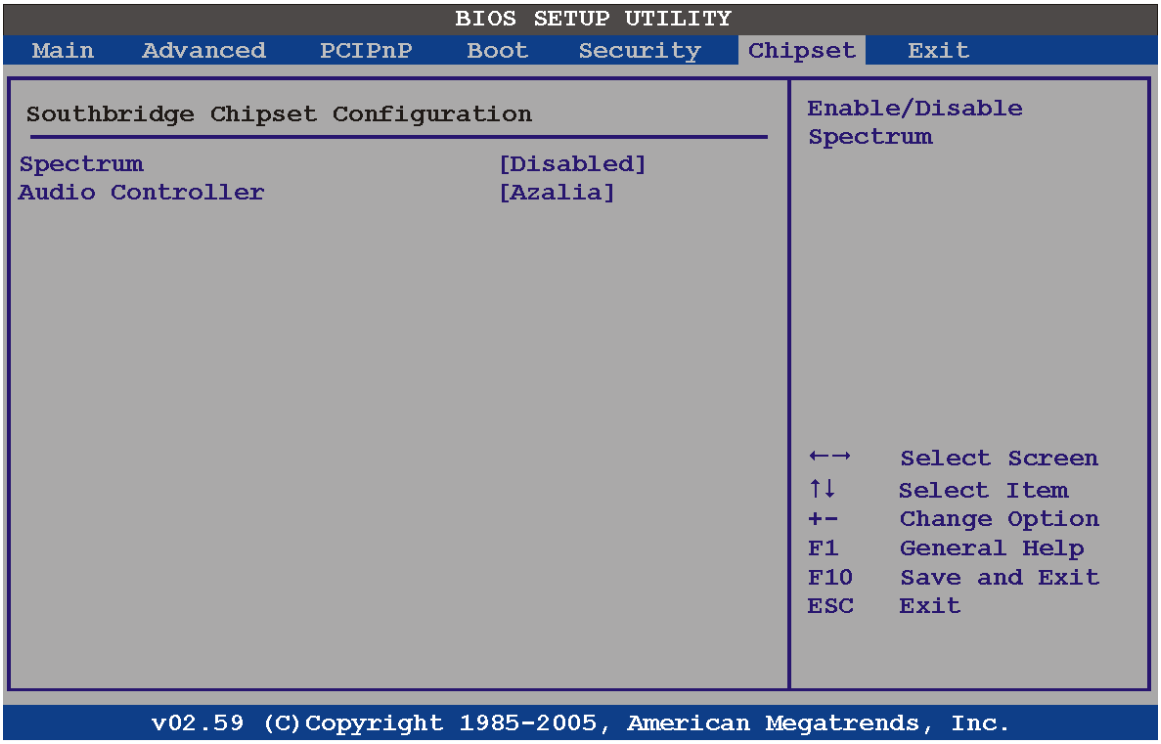
➔ **Internal Graphics Mode Select [Enable, 8 MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**		
➔ **Enable, 1 MB**		1 MB of memory used by internal graphics device
➔ **Enable, 8 MB**	**DEFAULT**	8 MB of memory used by internal graphics device
➔ **Disabled**		Scaling is disabled

5.7.2 Southbridge Configuration

The Southbridge Configuration menu (**BIOS Menu 24**) allows the Southbridge chipset to be configured.



BIOS Menu 24:Southbridge Chipset Configuration

➔ **Spectrum [Disabled]**

Use the **Spectrum** option to reduce the EMI. Excess EMI is generated when the system clock generator pulses have extreme values. Spreading the pulse spectrum modulates changes in the extreme values from spikes to flat curves, thus reducing the EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

➔	**Disabled**	**DEFAULT**	EMI not reduced
➔	**Enabled**		EMI reduced

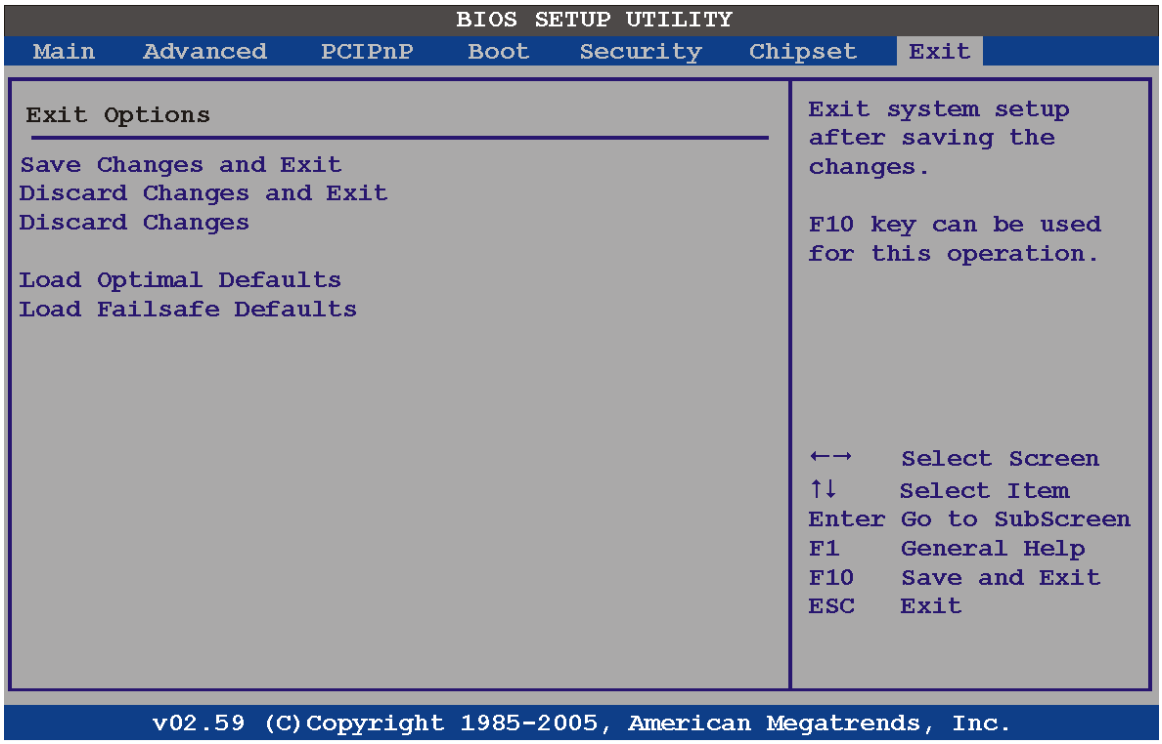
➔ **Audio Controller [Azalia]**

Use the **Audio Controller Selection** option to enable or disable the High Definition Audio CODEC.

➔ **Disabled**		The onboard HD Audio is disabled
➔ **Azalia**	**DEFAULT**	The onboard HD Audio is enabled

5.8 Exit

Use the **Exit** menu (**BIOS Menu 25**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
←→ Select Screen
↑↓ Select Item
Enter Go to SubScreen
F1 General Help
F10 Save and Exit
ESC Exit
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BIOS Menu 25:Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

6

Software Installation

6.1 Available Software Drivers

NOTE:

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. You may visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system.

- Chipset driver
- VGA driver
- Gigabit Ethernet driver
- Audio Driver

Installation instructions are given below.

6.2 Chipset Driver

To install the chipset driver, please follow the steps below.

Step 1: Browse to the **NB** directory on the installation CD (Figure 6-1).

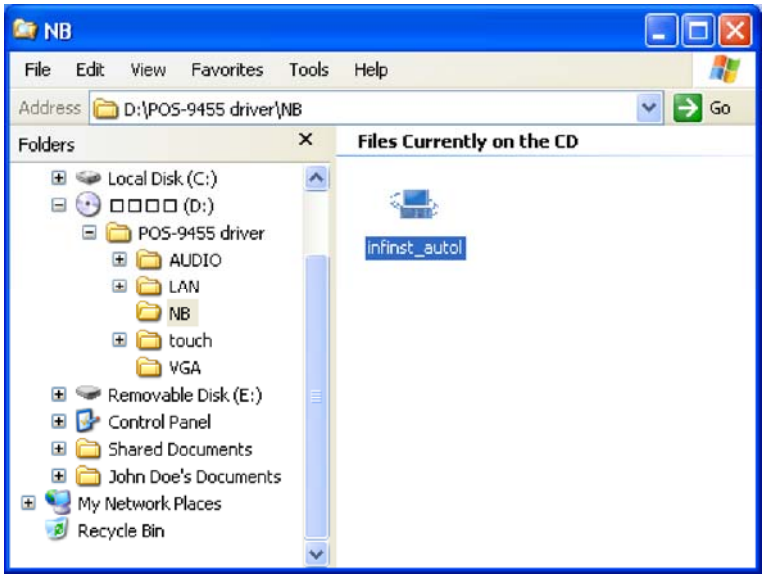


Figure 6-1: Chipset Driver Installation Program

Step 2: Double-click the **infinst_Autol.exe** icon.

Step 3: The welcome screen in Figure 6-2 appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
intel
Welcome to the Setup Program
This setup program will install the Intel® Chipset Device Software onto this computer. It is strongly recommended that you exit all Windows* programs before continuing.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 6-2: Chipset Driver Installation Welcome Screen

Step 4: Click **NEXT** to continue the installation process.

Step 5: The license agreement in Figure 6-3 appears.

Intel® Chipset Device Software
Intel® Chipset Device Software
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 6-3: Chipset Driver Installation License Agreement

Step 6: Read the license agreement. To accept the terms and conditions stipulated in the agreement, click **YES**.

Step 7: The Readme file in Figure 6-4 appears.

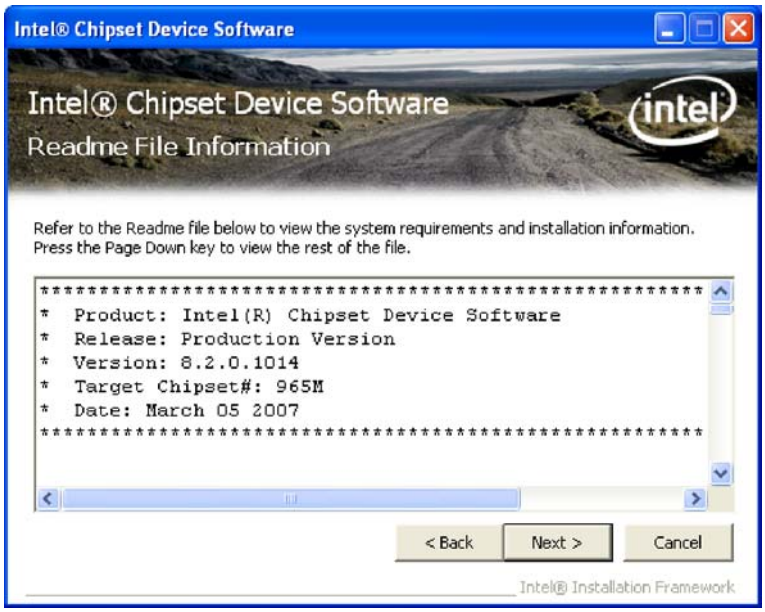

Intel® Chipset Device Software
Intel® Chipset Device Software
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
Press the Page Down key to view the rest of the file.
****
* Product: Intel(R) Chipset Device Software
* Release: Production Version
* Version: 8.2.0.1014
* Target Chipset#: 965M
* Date: March 05 2007
****
< Back
Next >
Cancel
Intel® Installation Framework

Figure 6-4: Chipset Driver Readme File Information

Step 8: Read the Readme file information and then click **NEXT** to start the driver installation.

Step 9: The **Setup Progress** windows appears (Figure 6-5).

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Progress
intel
Please wait while the following setup operations are performed:
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
Version: 8.2.0.1008
Installing Driver: Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
Version: 8.2.0.1008
Click Next to continue.
Next
Intel® Installation Framework

Figure 6-5: Chipset Driver Installation Complete

Step 10: After the driver installation process is complete click **NEXT** to continue

Step 11: The **Setup is Complete** windows appears (Figure 6-6).

Intel® Chipset Device Software
Intel® Chipset Device Software
Setup Is Complete
intel
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Figure 6-6: Chipset Driver Installation Complete

Step 12: The computer must be restarted for changes to take effect. Select "**Yes, I want to restart this computer now,**" to restart the computer when finished, or "**No, I will restart this computer later,**" to manually restart the computer later. Click **FINISH** to complete the driver installation.

6.3 Graphics Driver

To install the graphics driver, please follow the steps below.

Step 1: Browse to the **VGA** folder on the installation CD (Figure 6-7).

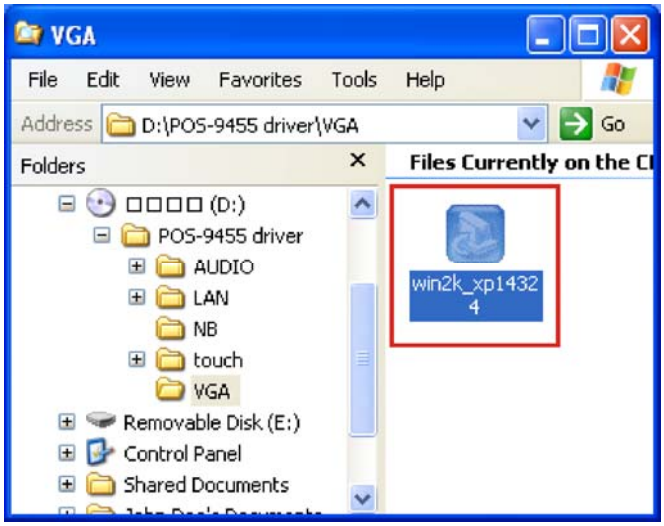


Figure 6-7: Graphics Setup Icon

Step 2: Double-click the setup icon to start the graphics driver installation (Figure 6-7).

Step 3: A new window appears with a detailed explanation of what is contained in the graphics driver file (Figure 6-8).

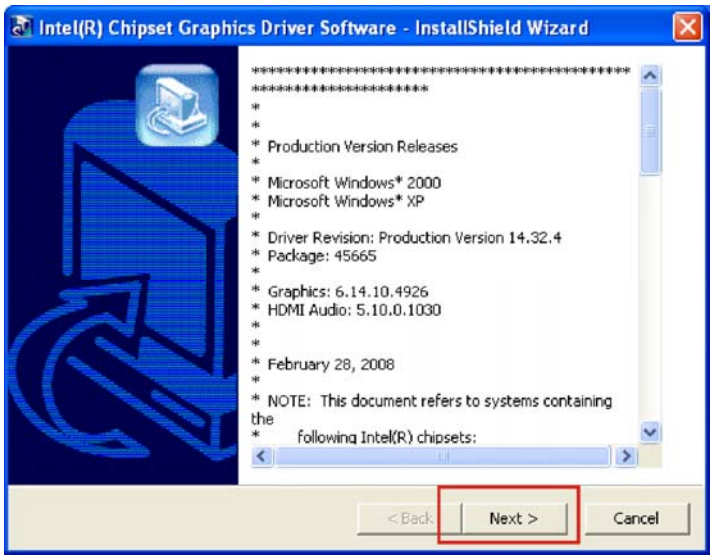

Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
* Production Version Releases
* Microsoft Windows* 2000
* Microsoft Windows* XP
* Driver Revision: Production Version 14.32.4
* Package: 45665
* Graphics: 6.14.10.4926
* HDMI Audio: 5.10.0.1030
* February 28, 2008
* NOTE: This document refers to systems containing the
* following Intel(R) chipsets:
< Back
Next >
Cancel

Figure 6-8: VGA Driver

Step 4: Click NEXT to continue the driver installation process (Figure 6-8).

Step 5: The Graphics driver welcome screen appears (Figure 6-9).

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
intel
Welcome to the Setup Program
This setup program will install the Intel® Graphics Media Accelerator Driver onto this computer. It is strongly recommended that you exit all programs before continuing. Click Next to continue.
< Back
Next >
Cancel
Intel® Installation Framework

Figure 6-9: Graphics Driver Installation

Step 6: Click **NEXT** to continue the driver installation (Figure 6-9).

Step 7: The license agreement appears (Figure 6-10).

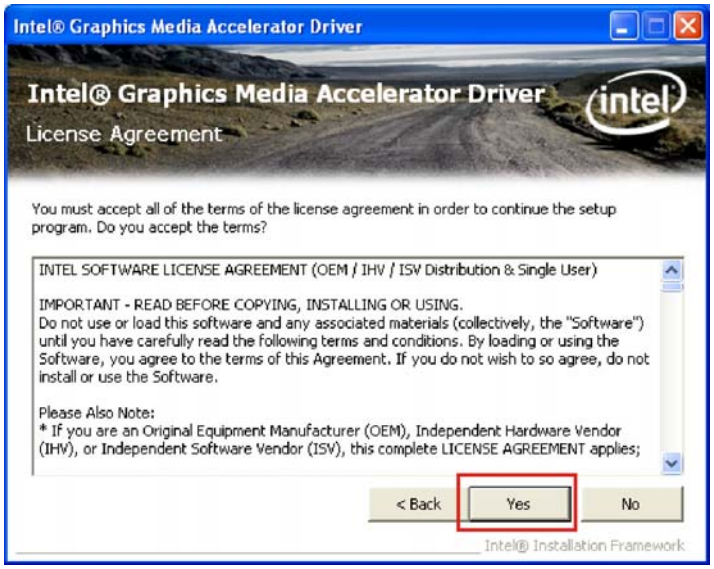

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
License Agreement
intel
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
< Back
Yes
No
Intel® Installation Framework

Figure 6-10: Graphics Driver License Agreement

Step 8: Read the license agreement carefully. Click **YES** to accept the terms of the license agreement and continue installation.

Step 9: A new window appears with details of the drivers to be installed (Figure 6-11).

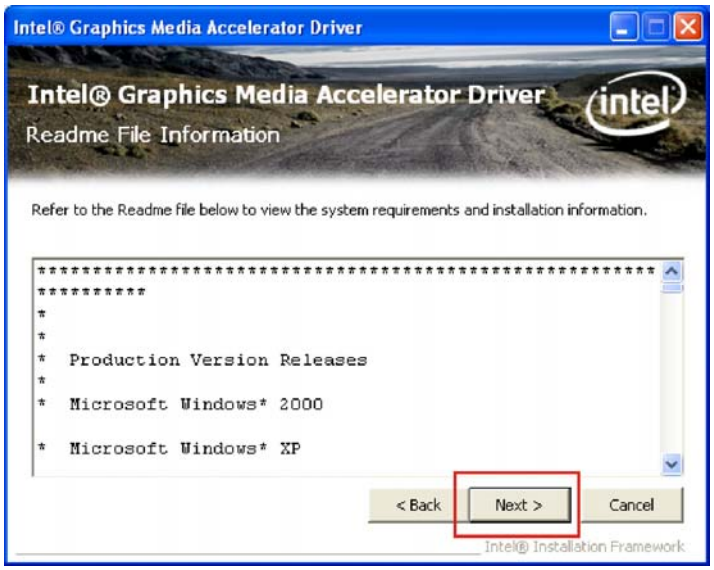

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Readme File Information
intel
Refer to the Readme file below to view the system requirements and installation information.
****
* Production Version Releases
* Microsoft Windows* 2000
* Microsoft Windows* XP
< Back
Next >
Cancel
Intel® Installation Framework

Figure 6-11: Graphics Driver Readme file

Step 10: Click **NEXT** to start installing the graphics drivers.

Step 11: The driver installation progress window appears and shows details for each of the drivers as they are installed (Figure 6-12).

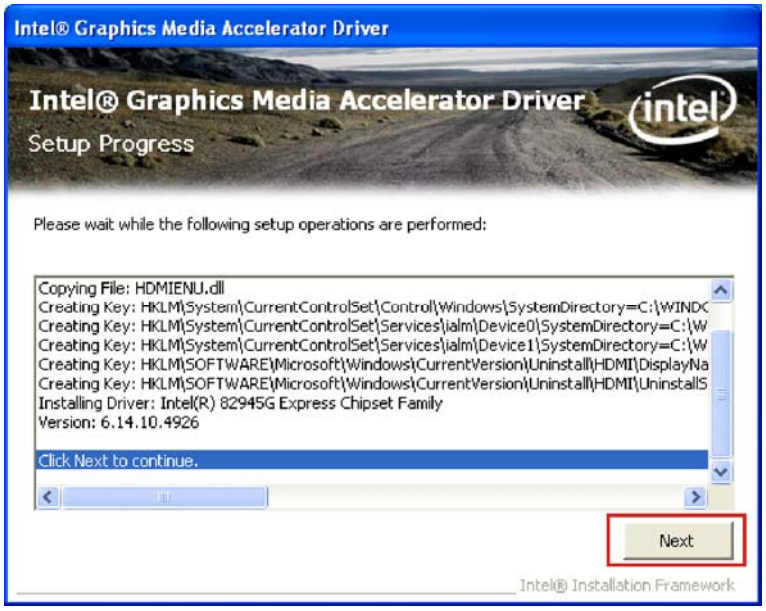


Figure 6-12: Graphics Driver Installation Notice

Step 12: The **Setup is Complete** window appears. (Figure 6-13).

Intel® Graphics Media Accelerator Driver
Intel® Graphics Media Accelerator Driver
Setup Is Complete
You must restart this computer for the changes to take effect. Would you like to restart the computer now?
Yes, I want to restart this computer now.
No, I will restart this computer later.
Click Finish, then remove any installation media from the drives.
Finish
Intel® Installation Framework

Figure 6-13: Graphics Driver Installation Complete

Step 13: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click FINISH to restart the computer.

6.4 Gigabit Ethernet Driver Installation

NOTE:

Two different Gigabit Ethernet driver versions are included. These versions correspond to two releases of the WIDS-51XX. Windows will automatically select the correct one. The motherboard versions and corresponding drivers are listed below

- POS-9455-R10 – use E172 driver
- POS-9455-R11 – use E212 driver

To install the Gigabit Ethernet driver, please follow the steps below.

Step 1: Open **Windows Control Panel (**Figure 6-14).

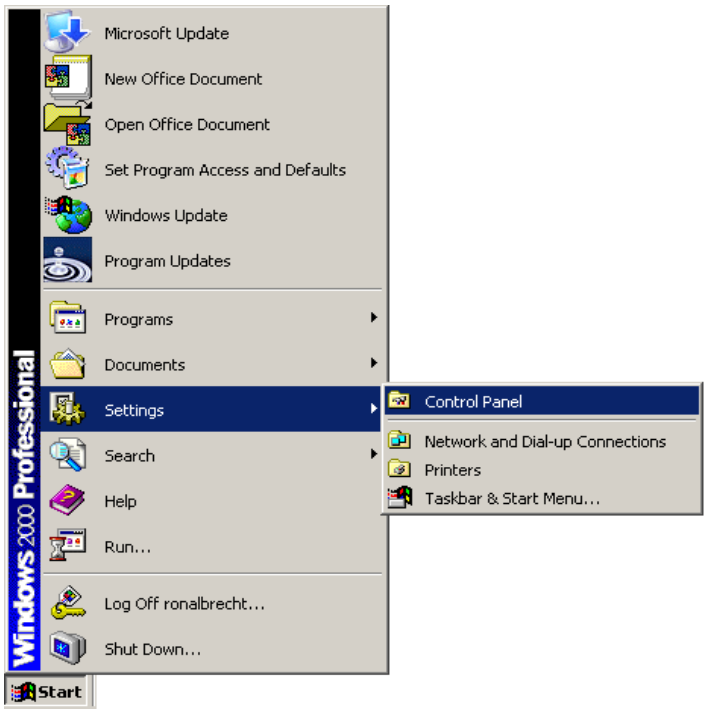


Figure 6-14: Windows Control Panel

Step 2: Double-click the **System** icon (Figure 6-15).

Figure 6-15: System Icon

Step 3: Select the Hardware tab and click the **DEVICE MANAGER** tab (Figure 6-16).

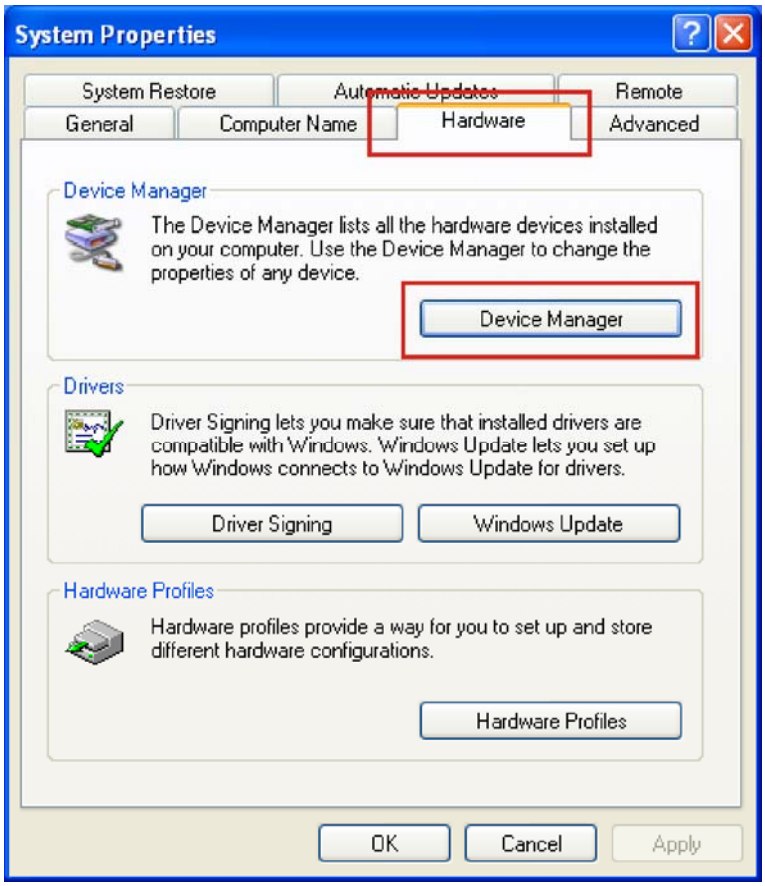

System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

Figure 6-16: Device Manager Tab

Step 4: Right-click the “Ethernet Controller” and select “Update Driver…” to start the driver update process (Figure 6-17).

Figure 6-17: Device Manager List

Step 5: The **Device Driver Wizard** appears (Figure 6-18).

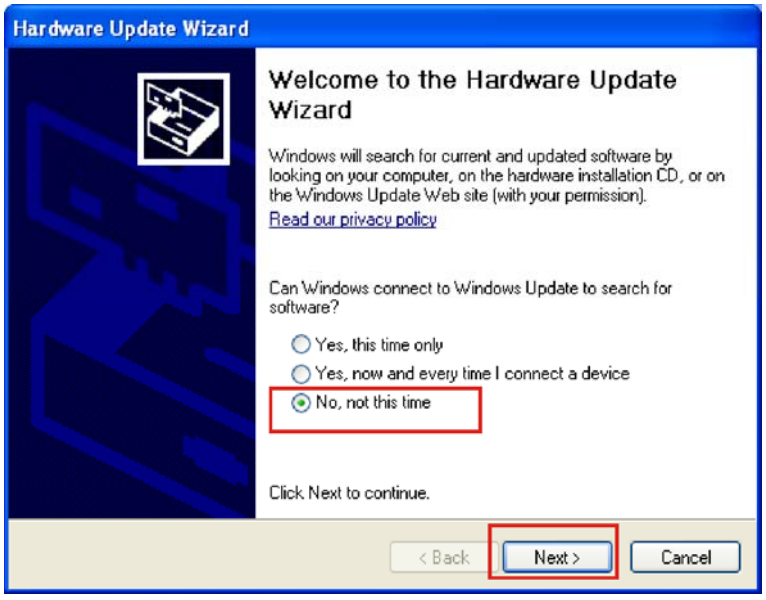

Hardware Update Wizard
Welcome to the Hardware Update Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.
< Back
Next >
Cancel

Figure 6-18: Search Windows Update Prompt

Step 6: Select "**No, not this time**" to force the wizard to search hard drives, CD drives and floppy drives for a driver and not connect to the Internet to search for the appropriate driver (Figure 6-18).

Step 7: The automatic driver search prompt appears (Figure 6-19).

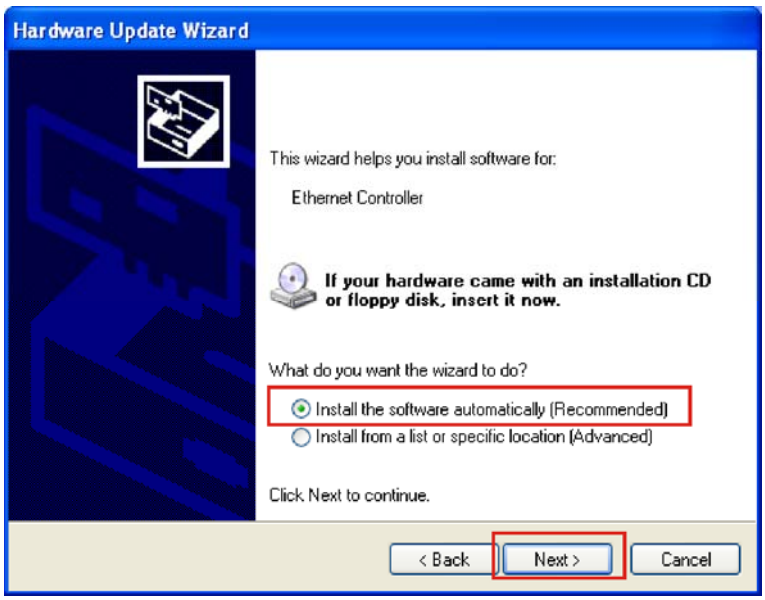

Hardware Update Wizard
This wizard helps you install software for:
Ethernet Controller
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

Figure 6-19: Search Windows Update Prompt

Step 8: Select "**Install the software automatically (Recommended)**," and click NEXT to continue (Figure 6-19).

Step 9: After the installation wizard finds the Gigabit Ethernet driver, the **Hardware Update Completed** window appears (Figure 6-20).

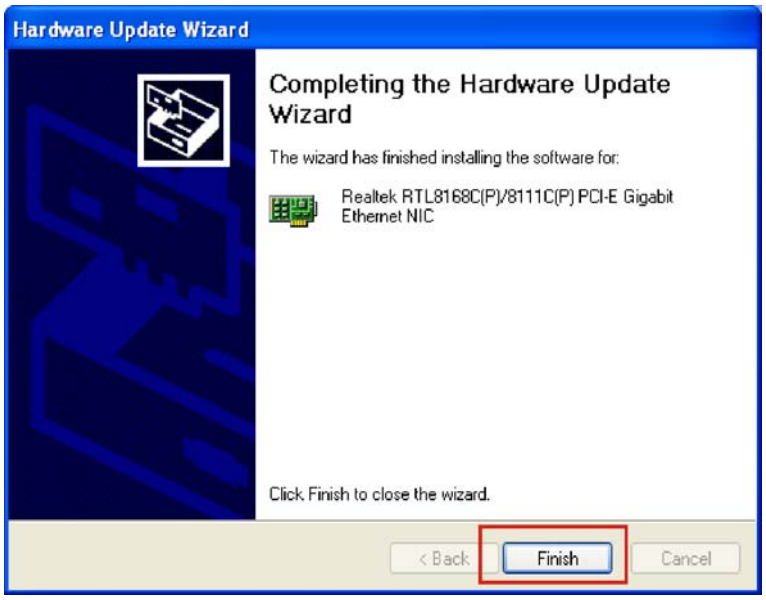

Hardware Update Wizard
Completing the Hardware Update Wizard
The wizard has finished installing the software for:
Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
Click Finish to close the wizard.
< Back
Finish
Cancel

Figure 6-20: Hardware Installation Complete

Step 10: Click **FINISH** to exit the installation wizard and complete the installation process.

6.5 Audio Driver

To install the audio driver, the audio needs to be enabled in the BIOS and then the software driver can be installed.

6.5.1 BIOS Setup

Step 1: Enter the BIOS setup. To do this, reboot the system and press **DEL** during POST.

Step 2: Go to the Southbridge Configuration menu. Set the **Audio Controller** option to [auto].

Step 3: Press **F10** to save the changes and exit the BIOS setup. The system reboots.

6.5.2 Driver Installation

To install the audio driver please follow the steps below.

Step 1: Browse to the AUDIO folder on the installation CD (Figure 6-21).

Figure 6-21: Select the Audio CODEC

Step 2: Double-click the **Setup** icon.

Step 3: The audio setup window appears (Figure 6-22**)**.

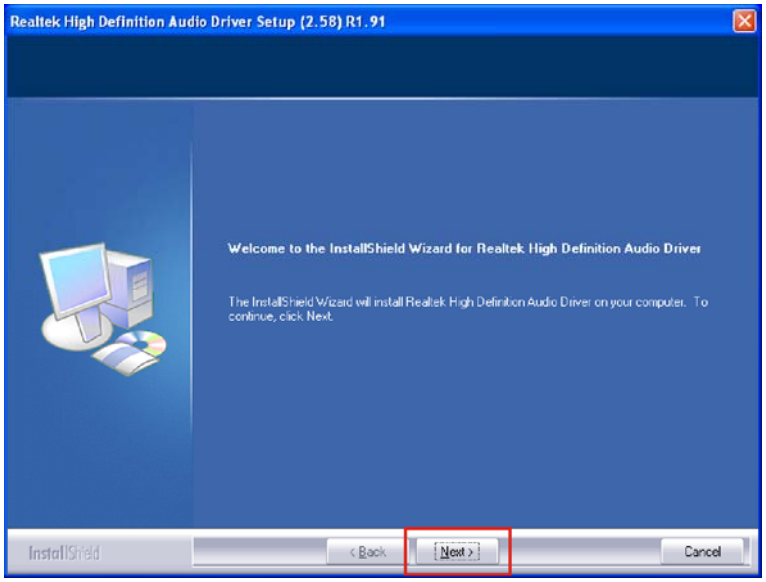

Realtek High Definition Audio Driver Setup (2.58) R1.91
Welcome to the InstallShield Wizard for Realtek High Definition Audio Driver
The InstallShield Wizard will install Realtek High Definition Audio Driver on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Figure 6-22: Audio Driver Installation

Step 4: Click **NEXT** to start the driver installation (Figure 6-22).

Step 5: The audio driver installation begins.

Step 6: The Windows logo testing warning screen is shown. The warning explains that the software has not passed Windows logo testing. Click **CONTINUE ANYWAY** to continue installing the audio drivers (Figure 6-23).

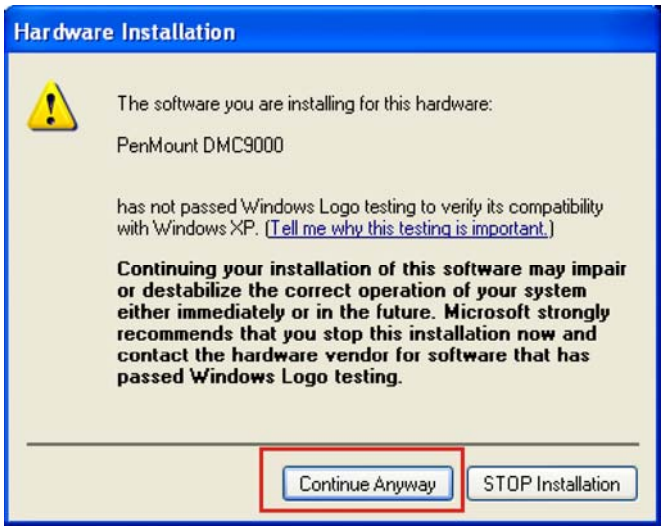

Hardware Installation
The software you are installing for this hardware:
PenMount DMC9000
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Figure 6-23: Windows Logo Testing

Step 7: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

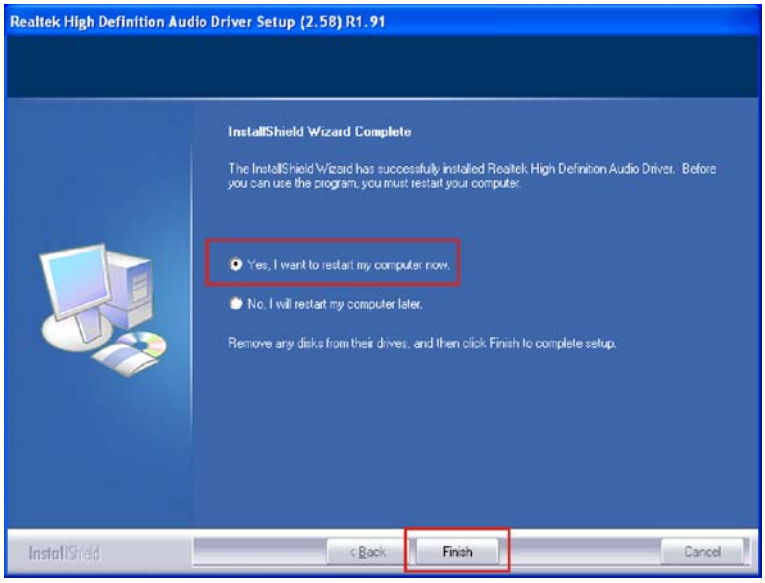

Realtek High Definition Audio Driver Setup (2.58) R1.91
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Realtek High Definition Audio Driver. Before you can use the program, you must restart your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
InstallShield
< Back
Finish
Cancel

Figure 6-24: InstallShield Wizard Complete

6.6 Touch Panel Driver

To install the touch panel driver, please follow the steps below.

Step 1: Browse to the **Touch** directory on the installation CD (Figure 6-25).

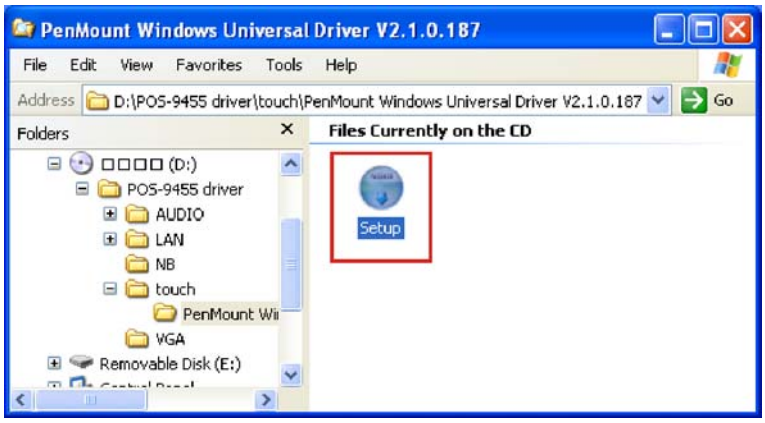


Figure 6-25: S-Video Patch Folder

Step 2: Double-click the **setup** icon (Figure 6-25).

Step 3: A new window opens and the touch panel driver installation wizard is shown (**Figure 6-26**).

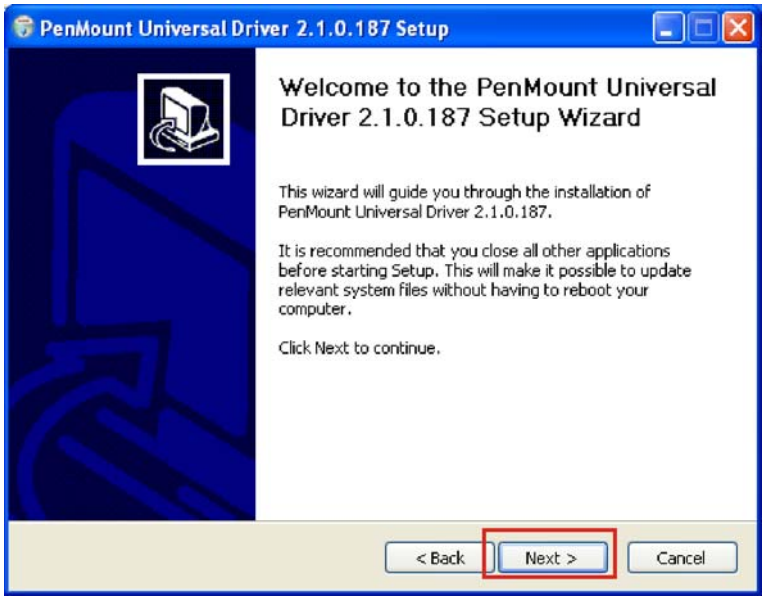

PenMount Universal Driver 2.1.0.187 Setup
Welcome to the PenMount Universal Driver 2.1.0.187 Setup Wizard
This wizard will guide you through the installation of PenMount Universal Driver 2.1.0.187.
It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.
Click Next to continue.
< Back
Next >
Cancel

Figure 6-26: Touch Panel Driver Welcome Screen

Step 4: Click **NEXT** to begin the touch panel driver installation process (Figure 6-26).

Step 5: The license agreement window appears (**Figure 6-27**).

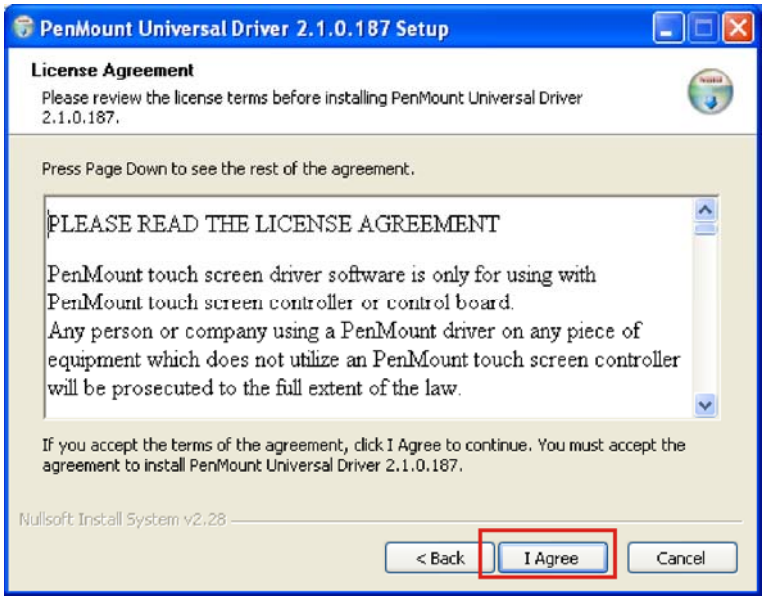

PenMount Universal Driver 2.1.0.187 Setup
License Agreement
Please review the license terms before installing PenMount Universal Driver 2.1.0.187.
Press Page Down to see the rest of the agreement.
PLEASE READ THE LICENSE AGREEMENT
PenMount touch screen driver software is only for using with PenMount touch screen controller or control board.
Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install PenMount Universal Driver 2.1.0.187.
Nullsoft Install System v2.28
< Back
I Agree
Cancel

Figure 6-27: Touch Panel License Agreement

Step 6: Read the license agreement carefully. Click **I AGREE** to accept the terms of the agreement and proceed with the installation (Figure 6-27).

Step 7: The **Choose Installation Location** window appears (Figure 6-28).

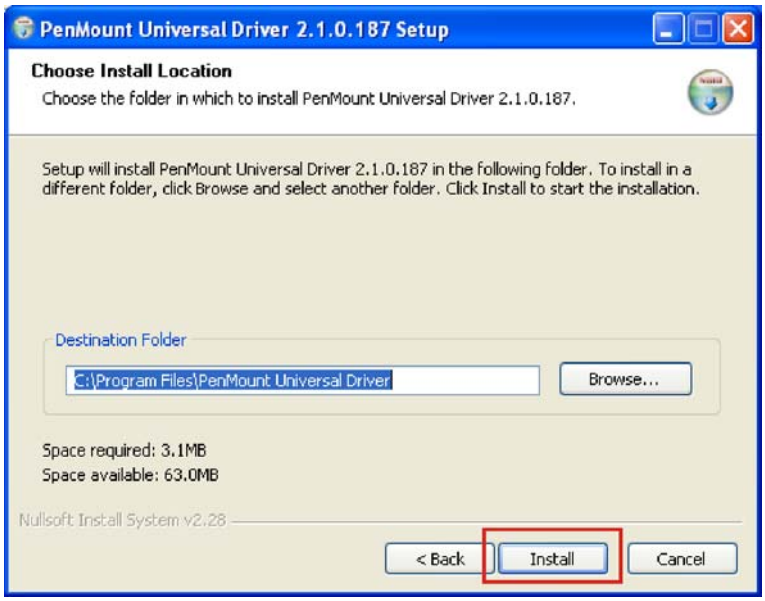

PenMount Universal Driver 2.1.0.187 Setup
Choose Install Location
Choose the folder in which to install PenMount Universal Driver 2.1.0.187.
Setup will install PenMount Universal Driver 2.1.0.187 in the following folder. To install in a different folder, click Browse and select another folder. Click Install to start the installation.
Destination Folder
C:\Program Files\PenMount Universal Driver
Browse...
Space required: 3.1MB
Space available: 63.0MB
Nullsoft Install System v2.28
< Back
Install
Cancel

Figure 6-28: Touch Panel Installation Directory

Step 8: Accept the default installation directory (only change if necessary) then click **INSTALL** to install the touch panel drivers (Figure 6-28).

Step 9: The touch panel driver begins installing (Figure 6-29).

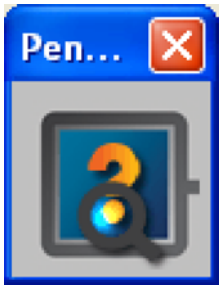


Figure 6-29: Touch Panel Drivers Installing

Step 10: The Windows logo testing warning screen is shown. The warning explains that the software has not passed Windows logo testing. Click **CONTINUE**

ANYWAY to continue the installation to continue installing the touch panel driver (Figure 6-23).

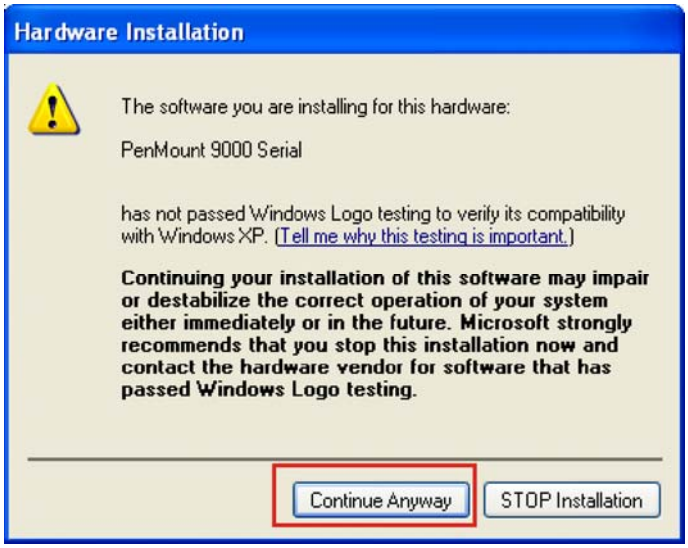

Hardware Installation
The software you are installing for this hardware:
PenMount 9000 Serial
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

Figure 6-30: Windows Logo Testing

Step 11: The **InstallShield Wizard Completed** window appears (**Figure 6-31**).

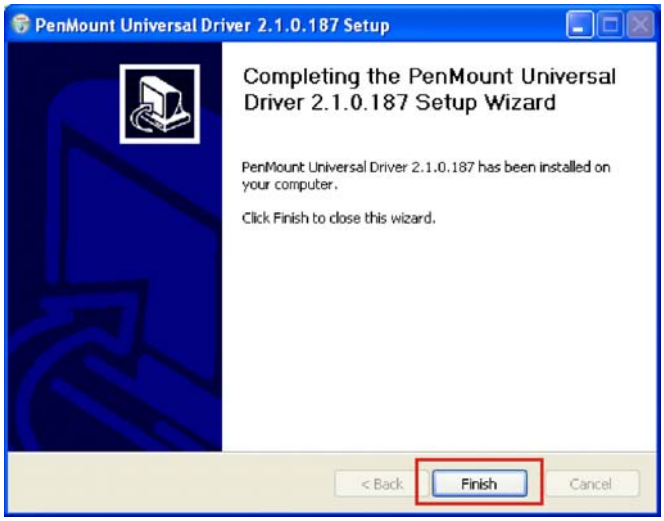

PenMount Universal Driver 2.1.0.187 Setup
Completing the PenMount Universal Driver 2.1.0.187 Setup Wizard
PenMount Universal Driver 2.1.0.187 has been installed on your computer.
Click Finish to close this wizard.
< Back
Finish
Cancel

Figure 6-31: InstallShield Wizard Complete

Step 12: Click FINISH to complete the installation process and exit the touch panel driver installation program (Figure 6-31).

Chapter

7

System Maintenance

7.1 System Maintenance Introduction

If the components of the WIDS-51XX series fail they must be replaced. Components that can be replaced include:

- CF Module
- SATA HDD
- Cooling Fans
- Wireless LAN module
- DIMM module
- CPU

Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions and jumper settings for the WIDS-51XX series are described below.

7.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the WIDS-51XX may result in permanent damage to the WIDS-51XX and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WIDS-51XX. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the WIDS-51XX is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***:- Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.

- ***Use an anti-static pad***: When configuring the WIDS-51XX, place it on an antic-static pad. This reduces the possibility of ESD damaging the WIDS-51XX.
- ***Only handle the edges of the PCB***:-: When handling the PCB, hold the PCB by the edges.

7.3 Turn off the Power

WARNING:

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

7.4 Remove the Back Panel

To access the WIDS-51XX internally the back panel must be removed. To remove the back panel, please follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section 7.2**.

Step 2: **Turn off the power**. See **Section 7.3**.

Step 3: **Remove the retention screws on the back**. Remove the eight retention screws (**Figure 4-1**) from the rear panel.

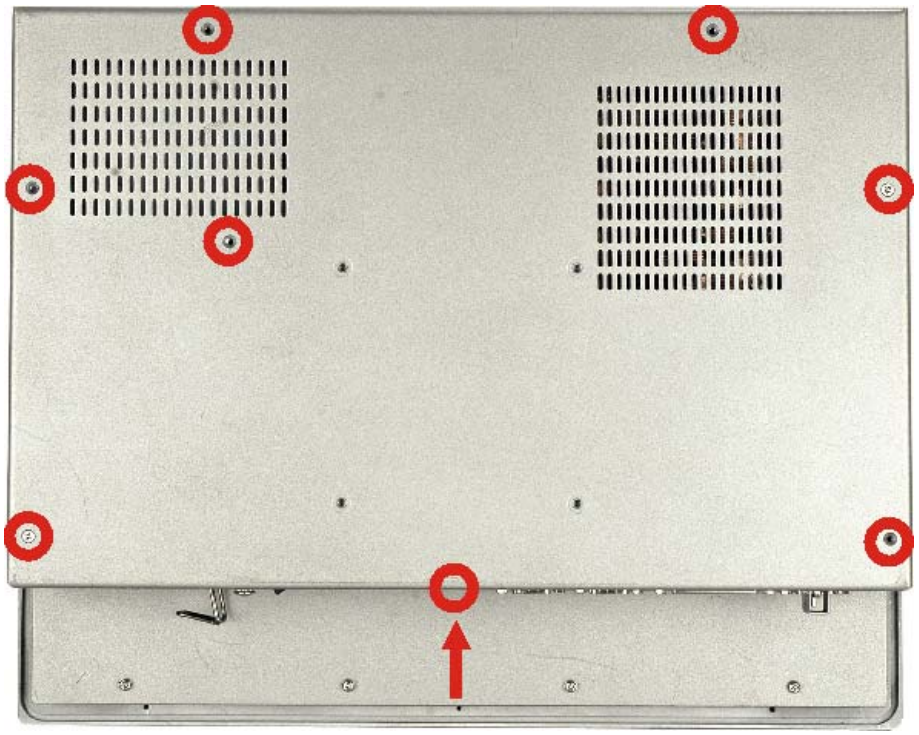


Figure 7-1: Rear Panel Retention Screws (Back)

Step 4: Remove the rear panel. Gently lift the rear panel.

7.5 Reset CMOS

If the WIDS-51XX fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. The Reset CMOS button is shown below. To reset the CMOS, push the button.

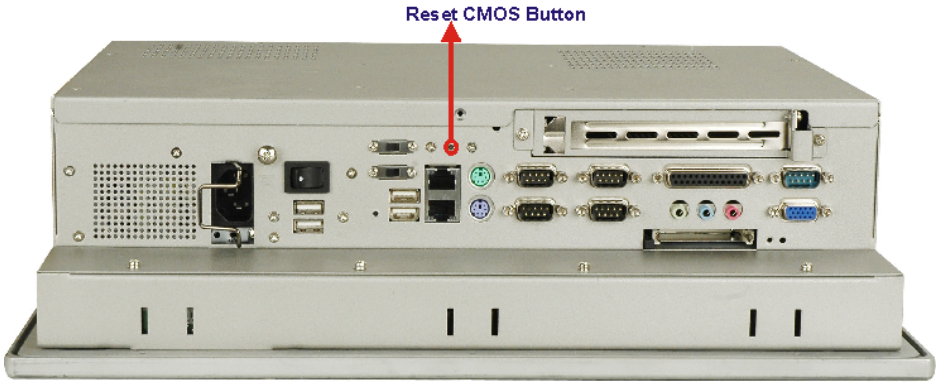


Figure 7-2: Reset CMOS Button

7.6 Replacing Components

7.6.1 Hard Disk Drive Replacement

If the HDD fails, please follow the steps below:

Step 1: **Follow all anti-static procedures**. See **Section 7.2**.

Step 2: **Turn off the power**. See **Section 7.3**.

Step 3: **Remove the back panel**. See **Section 7.4**.

Step 4: **Remove the hard drive bracket**. The HDD bracket is secured to the WIDS-51XX with four retention screws. See Figure 7-3. Once the retention screws are removed, gently lift the HDD bracket.

Figure 7-3: HDD Bracket Retention Screws

Step 5: **Remove the HDD retention screws**. Remove the four retention screws from the side of the HDD bracket that secure the HDD to the HDD bracket.

Figure 7-4: HDD Retention Screws

Step 6: **Remove the HDD from the bracket**. Slide the HDD out of the bracket.

Step 7: **Install the new HDD**. Slide the new HDD into the bracket making sure the connectors are correctly inserted. Secure the new HDD in the bracket with the four previously removed retention screws.

Step 8: **Reinstall the HDD bracket**. Secure the HDD bracket to the system with the four previously removed retention screws.

7.6.2 CPU Replacement

To replace the CPU, please follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section 7.2**.

Step 2: **Turn off the power**. See **Section 7.3**.

Step 3: **Remove the back panel**. See **Section 7.4**.

Step 4: **Remove the heat sink**. The heat sink is secured to the POS-9455 with four retention screws. Remove the four retention screws and lift up the heat sink. See Figure 7-5.

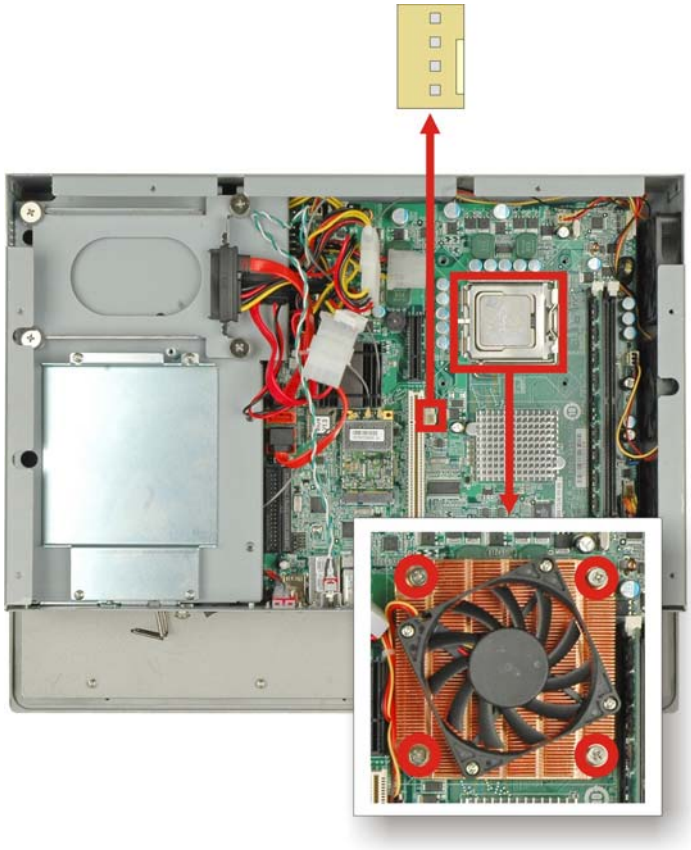


Figure 7-5: Heat Sink Retention Screws

Step 5: **Open the socket**. Disengage the load lever by pressing the lever down and slightly outward to clear the retention tab. Rotate the load lever to a fully open position. Then rotate the load plate towards the opposite direction. See **Figure 7-6**.

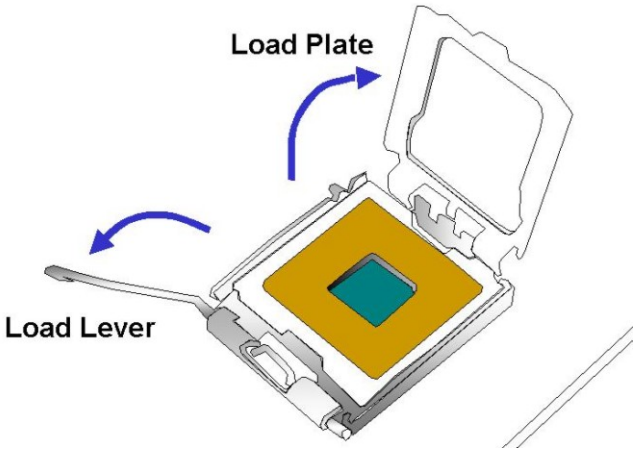


Figure 7-6: Open the CPU Socket Load Plate

Step 6: **Remove the old CPU**. Gently lift the broken CPU out of the socket.

Step 7: **Inspect the CPU socket** Make sure there are no bent pins and make sure the socket contacts are free of foreign material. If any debris is found, remove it with compressed air.

Step 8: **Orientate the new CPU properly**. Make sure the IHS (Integrated Heat Sink) side is facing upward.

Step 9: **Correctly position the CPU.** Match the Pin 1 mark with the cut edge on the CPU socket.

Step 10: **Align the CPU pins.** Locate pin 1 and the two orientation notches on the CPU. Carefully match the two orientation notches on the CPU with the socket alignment keys.

Step 11: **Insert the CPU.** Gently insert the CPU into the socket. If the CPU pins are properly aligned, the CPU should slide into the CPU socket smoothly. See **Figure 7-7**.

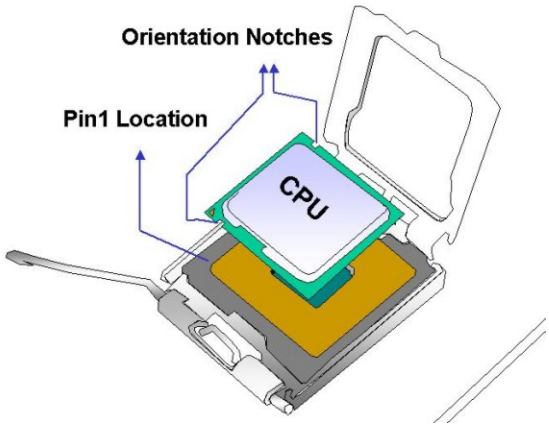


Figure 7-7: Insert the Socket LGA775 CPU

Step 12: Close the CPU socket. Close the load plate and engage the load lever by pushing it back to its original position. Secure the load lever under the retention tab on the side of CPU socket.

Warning:

Failure to reinstall the heat sink and fan may lead to irreparable damage.

Step 13: Reinstall the heat sink. Reinstall the heat sink and make sure the fan is plugged into the power connector.

7.6.3 DIMM Module Replacement

To replace the CPU, please follow the steps below.

Step 1: Follow all anti-static procedures. See **Section 7.2**.

Step 2: Turn off the power. See **Section 7.3**.

Step 3: Remove the back panel. See **Section 7.4**.

Step 4: Locate the DIMM Module. The DIMM sockets are shown below.

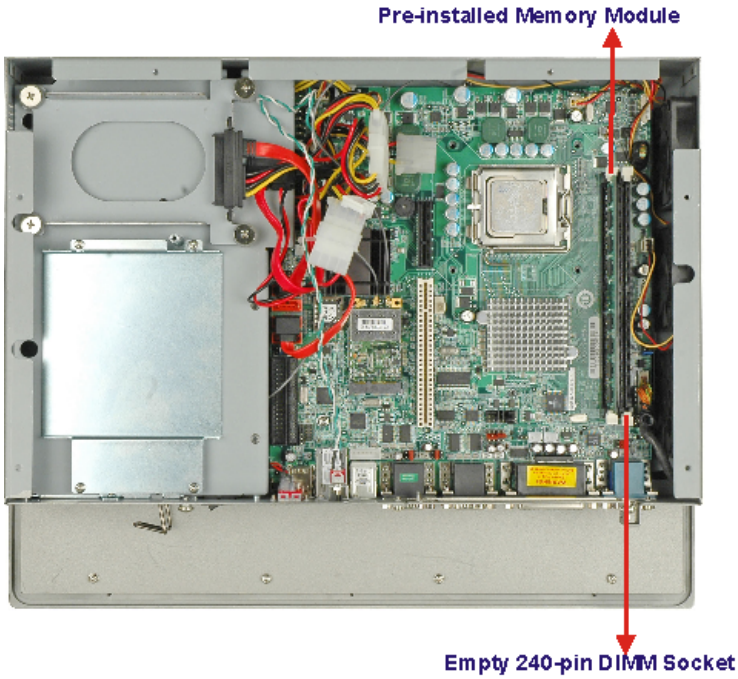


Figure 7-8: DIMM Module

Step 5: **Removing a DIMM**. To remove a DIMM, push both handles outward. The memory module is ejected by a mechanism in the socket.

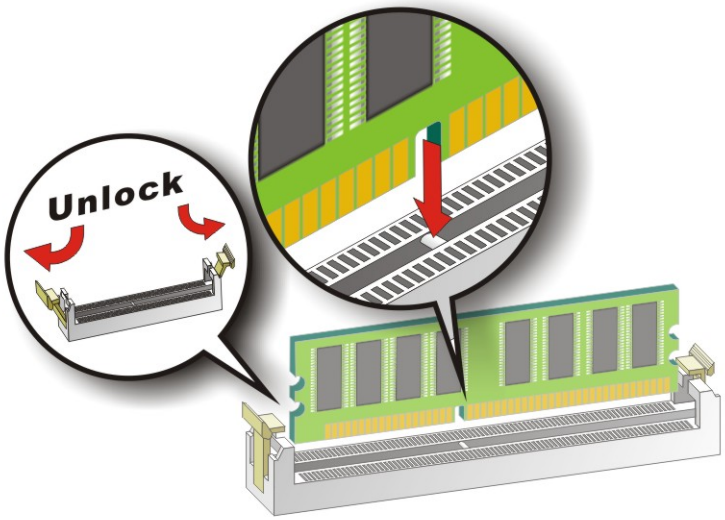


Figure 7-9: Installing a DIMM

Step 6: **Open the DIMM socket handles**. The DIMM socket has two handles that secure the DIMM into the socket. Before the DIMM can be inserted into the socket, the handles must be opened. See Figure 7-9.

Step 7: **Align the DIMM with the socket**. The DIMM must be oriented in such a way that the notch in the middle of the DIMM must be aligned with the plastic bridge in the socket. See Figure 7-9.

Step 8: **Insert the DIMM**. Once properly aligned, the DIMM can be inserted into the socket. As the DIMM is inserted, the white handles on the side of the socket will close automatically and secure the DIMM to the socket. See Figure 7-9.

7.6.4 Fan Replacement

To replace the CPU, please follow the steps below.

Step 1: **Follow all anti-static procedures**. See **Section 7.2**.

Step 2: **Turn off the power**. See **Section 7.3**.

Step 3: **Remove the back panel**. See **Section 7.4**.

Step 4: **Remove the Retention Screws**. Each fan is secured to the chassis with four retention screws. See Figure 7-10. Remove the screws from the failed fan.

Figure 7-10: Fan Retention Screws

Step 5: **Disconnect the power cable**. Each fan is connected to an a connector on the POS-9455. Disconnect the fan from the connector.

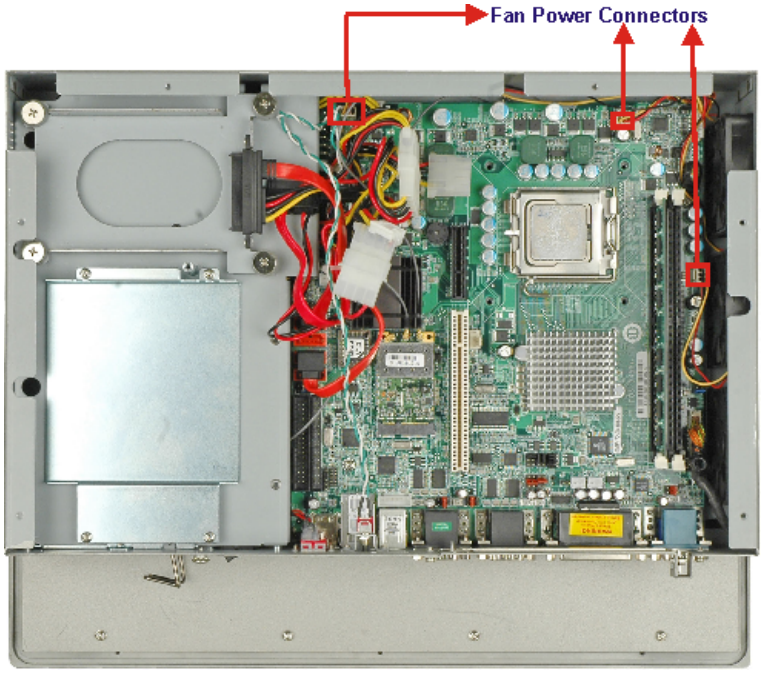


Figure 7-11: Fan Cable Connectors

Step 6: **Install the new fan**. Insert the cable connector into the corresponding POS-9455 connector and secure the fan to the chassis with the previously moved retention screws.

7.7 Reinstalling the covers

WARNING:

Failing to reinstall the covers may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete make sure the following are correctly installed.

- Heat sink
- CPU and DIMM housing
- HDD bracket
- DVD Bracket
- Cooling fans (plugged in)

Once all of the above are correctly installed, replace the cover.

Appendix

A

System Specifications

A.1 Motherboard Specifications

The system comes with an IEI POS-9455 motherboard. The detailed specifications for the motherboard are listed below.

SPECIFICATION	DESCRIPTION
CPU	LGA775 Intel® Core™2 Duo Pentium® 4 Pentium® D Celeron® D
Northbridge	Intel® 945
Southbridge	Intel® ICH7
Max. FSB	533 MHz
Memory	2 x 2.0 GB (max) 400/533/667 MHz DDR2 DIMM sockets up to 4.0 GB (total)
BIOS	AMI BIOS Label
Display	CRT integrated in Intel® 945 LVDS Dual 18/24-bit TTL LCD implemented through a Chrontel CH7308B LVDS chipset
Expansion Interface	1 x PCI slot 1 x PCIe slot
Audio	HD Audio
Ethernet	2 x Broadcom BCM5787M GbE controller
COM	1 x RS-232/422/485 port 5 x RS-232 ports (1 used internally for touch screen)
USB 2.0	6 x USB 2.0 ports
Drive Interfaces	2 x SATA drive connectors
LPT	1 x Parallel port
KB/ MS	2 x PS/2 connector

SPECIFICATION	DESCRIPTION
IrDA	1 x IrDA interface

Motherboard Specifications

A.2 Screen Specifications

An AUO G150XG01 is installed in the WIDS-515A and the AUO M170EG01 VD is installed on the WIDS-517A. Specifications for the screen are shown below.

Size	15	17"
Model	G150XG01 V1	M170EG01 VD
Resolution (pixel)	XGA (1024 x 768)	SXGA (1280 x 1024)
Active Area (mm)	304.1 x 228.1	337.9 x 270.3
Pixel Pitch (mm)	0.297	0.264
Mode	TN	TN
Number of Colors	262K	16.7M
Color Saturation (NTSC%)	65	72
View Angle (H/V)	140 / 120	160 / 160
Brightness (cd/m²)	350	300
Contrast Ratio	700:01:00	800:01:00
Response Time (ms) (at 25°C)	8	5 (on/off)
Power Consumption (W)	8.9	25.8
Interface	1ch LVDS	2ch LVDS

Supply Voltage (V)	3.3	5
Backlight	2 CCFL	4 CCFL
Outline Dimensions (mm)	326.5 x 253.5 x 12.0	358.5 x 296.5 x 15.0
Weight (g)	1100	1900

A.3 Touch Screen Specifications

A 5-wire resistive Panjit touch screen is installed in the monitor. Specifications for the touch screen are shown below.

SPECIFICATION	WIDS-515A	WIDS-517A
Model	PANJIT 1150508B	PANJIT 1171505A
Type	Analog Resistive Type Touch Panel	
Wire Type	5-wire	
Viewing Area (mm)	232.1 x 308.2	342.05× 275.45
Active Area (mm)	228.1 x 304.1	339.00× 272.40
Total Transmission	78%	
Maximum Voltage	DC 7V	
Connector Type	FPC.	
Operating Temperature	-10°C ~ 40°C	-10°C ~ 60°C
Operating Humidity	20% ~ 90% RH	
Storage Temperature	-20°C ~ 70°C	
Storage Humidity	20% ~ 90% RH	
Dimensions	258x334x2.9	365.00× 295.08× 2.9

Appendix

B

External Connector Pinouts

B.1 Introduction

Pin out signal definitions for the external connectors are provided in this appendix.

B.2 LAN Connectors

The WIDS-51XX is equipped with two built-in RJ-45 Ethernet controllers. The controllers can connect to the LAN through two RJ-45 LAN connectors. There are two LEDs on the connector indicating the status of LAN. The pin assignments are listed in the following table:

PIN	DESCRIPTION	PIN	DESCRIPTION
1	TXA+	5	TXC-
2	TXA-	6	TXB-
3	TXB+	7	TXD+
4	TXC+	8	TXD-

LAN Pinouts

B.3 Serial Port Connectors

The 9-pin DB-9 serial port connectors are connected to RS-232 serial communications devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI/5V/12V
5	GND		

RS-232 Serial Port Pinouts

B.3.1 COM 5 RS-422 and RS-485 Pinouts

The pinouts for RS-422 and RS-485 operation of external serial port COM 5 are detailed below.

COM 5	RS-422 Description
Pin 1	TX-
Pin 2	TX+
Pin 6	RX-
Pin 7	RX+

RS-422 Pinouts

COM 5	RS-485 Description
Pin 1	Data-
Pin 2	Data+

RS-485 Pinouts

B.4 USB Connector

The WIDS-51XX has eight external USB 2.0 ports. The ports connect to both USB 2.0 and USB 1.1 devices.

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	USBV3L 5V	2	GND
3	USBP4N	4	USBP5P
5	USBP4P	6	USBP5N
7	GND	8	USBV3L 5V

USB Port Pinouts

B.5 VGA Connector

The WIDS-51XX has a single 15-pin female connector for connectivity to standard display devices.

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND

PIN	DESCRIPTION	PIN	DESCRIPTION
9	VCC / NC	10	GND
11	NC	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDCCLK		

VGA Connector Pinouts

B.6 Keyboard/Mouse Connector

The WIDS-51XX keyboard and mouse connectors are standard PS/2 connectors.

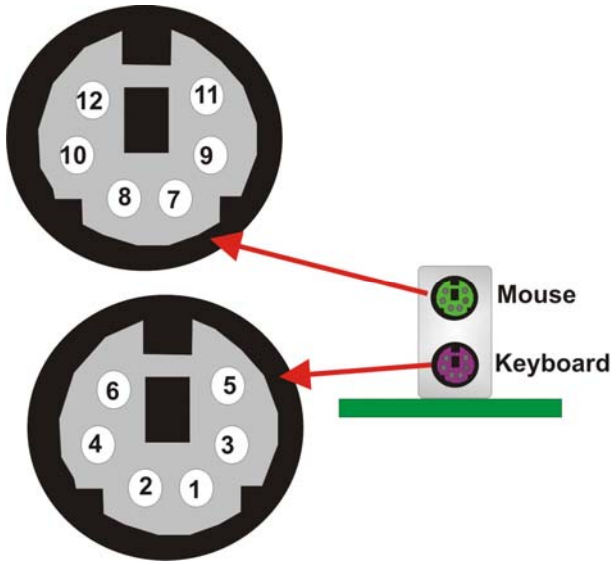


Figure 7-12: PS/2 Pinouts

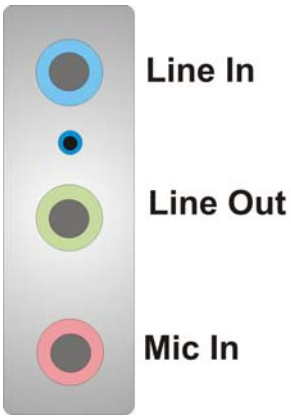
PIN	DESCRIPTION	PIN	DESCRIPTION
1	L_KDAT	7	L_MDAT
2	NC	8	NC
3	GND	9	GND
4	5V	10	5V
5	L_KCLK	11	L_MCLK
6	NC	12	NC

PS/2 Connector Pinouts

B.7 Audio Connector

The three audio jacks on the external audio connector enable the WIDS-51XX to be connected to external audio devices as specified below.

- **Line In port (Light Blue):** Connects a CD-ROM, DVD player, or other audio devices.
- **Line Out port (Lime):** Connects to a headphone or a speaker. With multi-channel configurations, this port can also connect to front speakers.
- **Microphone (Pink):** Connects a microphone.



Audio Connector

Appendix

C

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the WIDS-51XX series.

C.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

C.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the WIDS-51XX series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the WIDS-51XX series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the WIDS-51XX series chassis is opened when the WIDS-51XX series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the WIDS-51XX series.
- ***If considerable amounts of dust, water, or fluids enter the WIDS-51XX series***, turn off the power supply immediately, unplug the power cord, and contact the WIDS-51XXseries vendor.
- **DO NOT**:
  - Drop the WIDS-51XX series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

C.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the WIDS-51XX series may result in permanent damage to the WIDS-51XX series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the WIDS-51XX series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the WIDS-51XX series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

C.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the WIDS-51XX series, please follow the guidelines below.

C.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the WIDS-51XX series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the WIDS-51XXX series does not require cleaning. Keep fluids away from the WIDS-51XX series interior.
- Be cautious of all small removable components when vacuuming the WIDS-51XX series.
- Turn the WIDS-51XX series off before cleaning the WIDS-51XX series.
- Never drop any objects or liquids through the openings of the WIDS-51XX series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the WIDS-51XX series.
- Avoid eating, drinking and smoking within vicinity of the WIDS-51XX series.

C.2.2 Cleaning Tools

Some components in the WIDS-51XX series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the WIDS-51XX series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the WIDS-51XX series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the LWIDS-51XX series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the LWIDS-51XX series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the WIDS-51XX series. Dust and dirt can restrict the airflow in the WIDS-51XX series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

D

BIOS Configuration Options

D.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 5**.

- **System Overview** 90
- **System Time [xx:xx:xx]** 91
- **System Date [xx/xx/xx]** 91
- **Max CPUID Value Limit [Disabled]** 93
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- **LBA/Large Mode [Auto]** 99
- **Block (Multi Sector Transfer) [Auto]** 99
- **PIO Mode [Auto]** 99
- **DMA Mode [Auto]** 100
- **S.M.A.R.T [Auto]** 101
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- **Serial Port2 Mode [Normal]** 104
- **Parallel Port Address [Disabled]** 105
- **Parallel Port Mode [Normal]** 105
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- USB Function [Enabled] 121
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- Legacy USB Support [Enabled] 122
- USB 2.0 Controller Mode [FullSpeed] 122
- USB Mass Storage Reset Delay [20 Sec] 123
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- Emulation Type [Auto] 124
- IRQ# [Available] 126
- DMA Channel# [Available] 126
- Reserved Memory Size [Disabled] 127
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- Discard Changes 140
- Load Optimal Defaults 140
- Load Failsafe Defaults 140

Appendix

E

Address Mapping

E.1 Direct Memory Access (DMA)

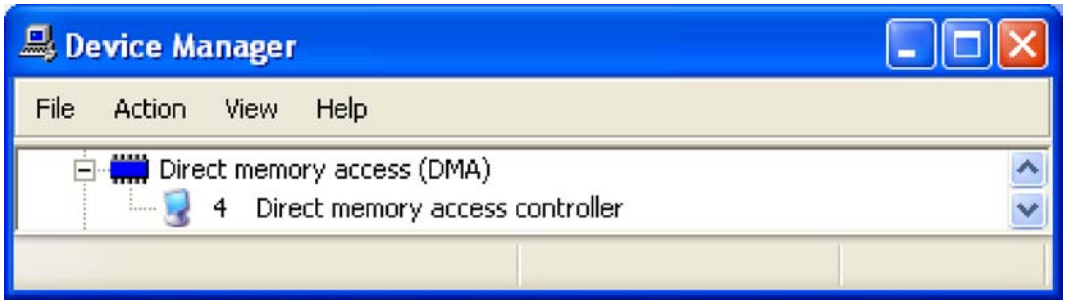

Figure E-1: Direct Memory Access (DMA)

E.2 Input/Output (IO)

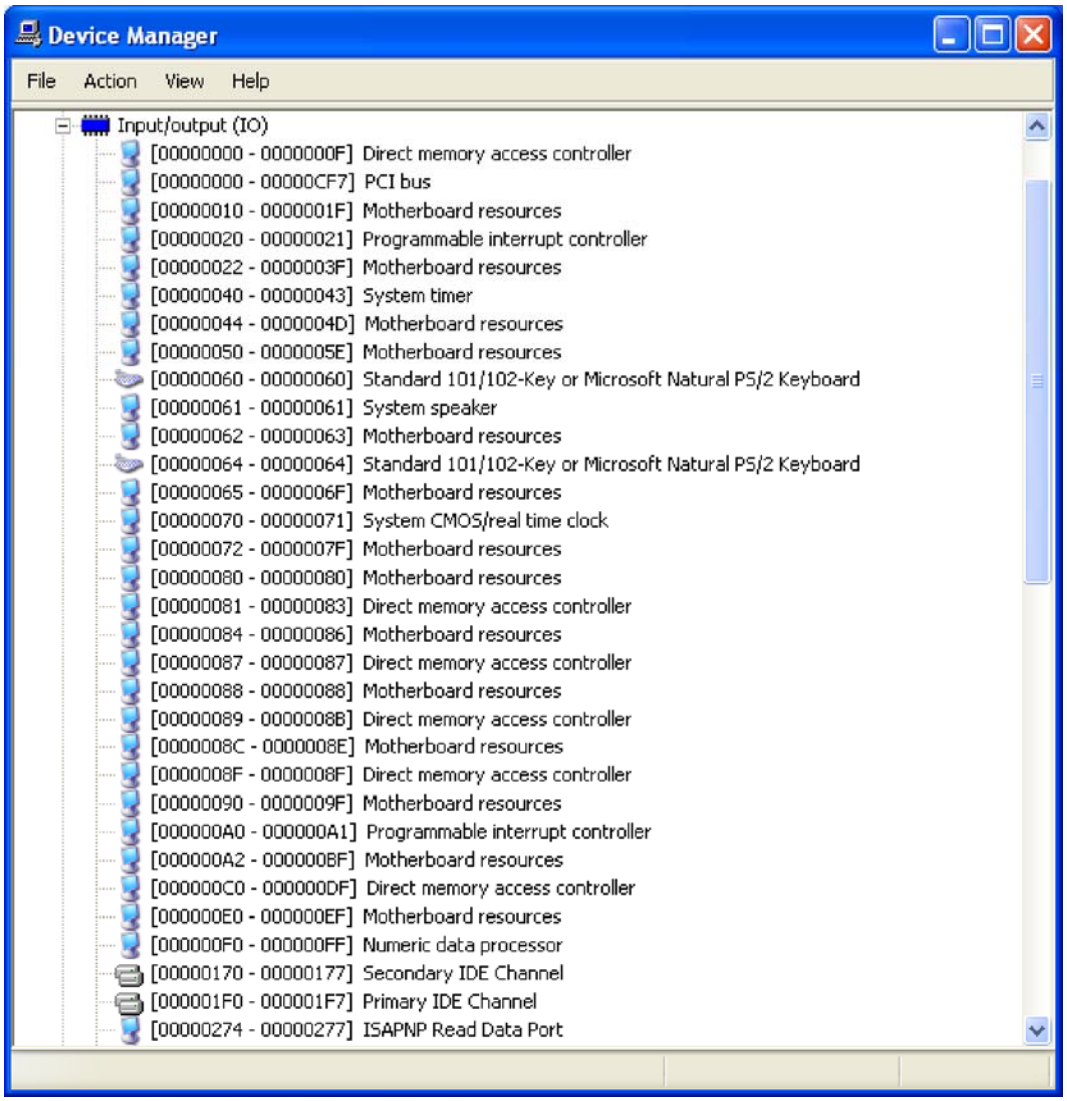
Device Manager
File
Action
View
Help
Input/output (IO)
[00000000 - 0000000F] Direct memory access controller
[00000000 - 00000CF7] PCI bus
[00000010 - 0000001F] Motherboard resources
[00000020 - 00000021] Programmable interrupt controller
[00000022 - 0000003F] Motherboard resources
[00000040 - 00000043] System timer
[00000044 - 0000004D] Motherboard resources
[00000050 - 0000005E] Motherboard resources
[00000060 - 00000060] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000061 - 00000061] System speaker
[00000062 - 00000063] Motherboard resources
[00000064 - 00000064] Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
[00000065 - 0000006F] Motherboard resources
[00000070 - 00000071] System CMOS/real time clock
[00000072 - 0000007F] Motherboard resources
[00000080 - 00000080] Motherboard resources
[00000081 - 00000083] Direct memory access controller
[00000084 - 00000086] Motherboard resources
[00000087 - 00000087] Direct memory access controller
[00000088 - 00000088] Motherboard resources
[00000089 - 0000008B] Direct memory access controller
[0000008C - 0000008E] Motherboard resources
[0000008F - 0000008F] Direct memory access controller
[00000090 - 0000009F] Motherboard resources
[000000A0 - 000000A1] Programmable interrupt controller
[000000A2 - 000000BF] Motherboard resources
[000000C0 - 000000DF] Direct memory access controller
[000000E0 - 000000EF] Motherboard resources
[000000F0 - 000000FF] Numeric data processor
[00000170 - 00000177] Secondary IDE Channel
[000001F0 - 000001F7] Primary IDE Channel
[00000274 - 00000277] ISAPNP Read Data Port

Figure E-2: Input/Output (IO) (1 of 2)

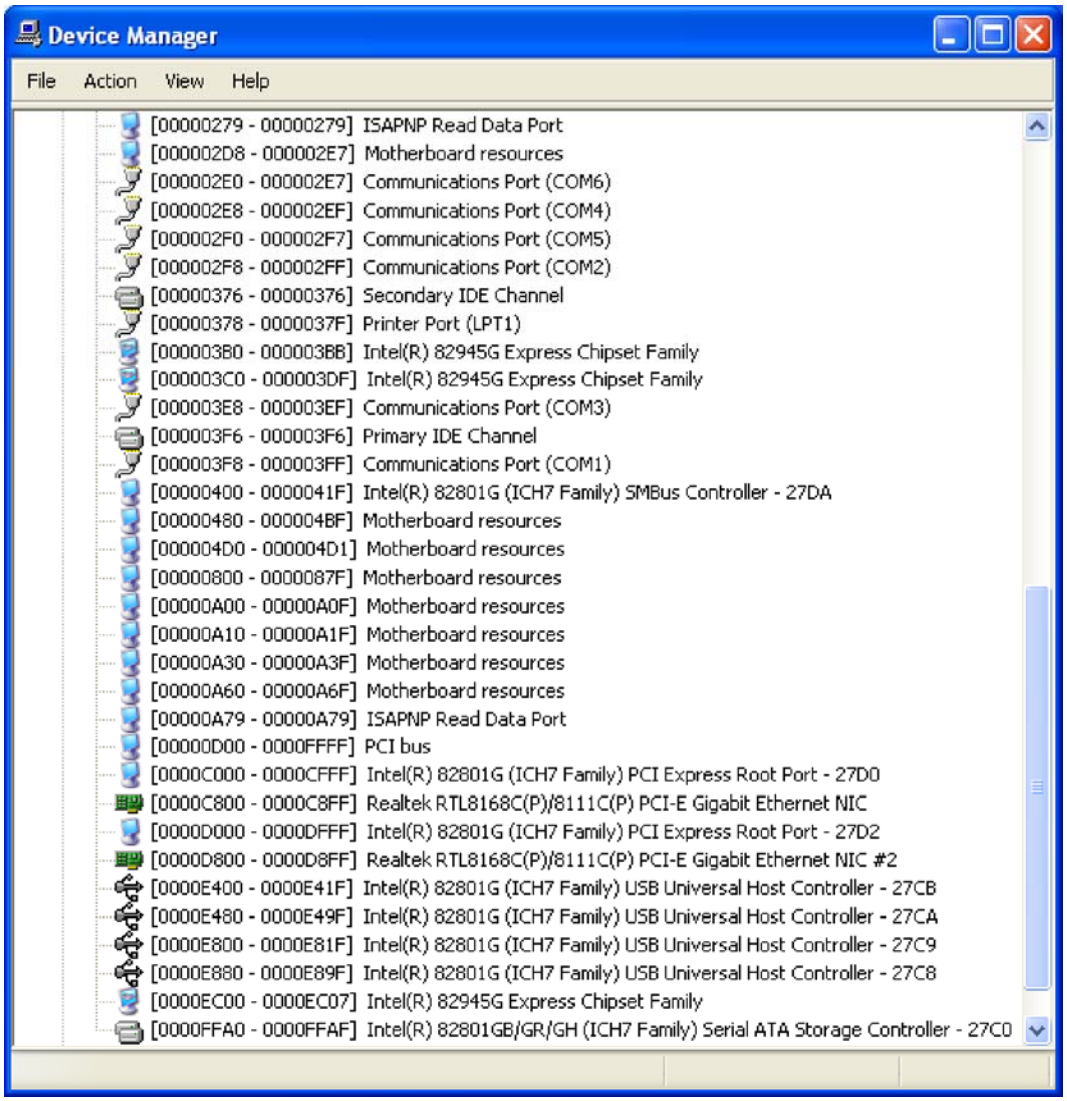
Device Manager
File Action View Help
[00000279 - 00000279] ISAPNP Read Data Port
[000002D8 - 000002E7] Motherboard resources
[000002E0 - 000002E7] Communications Port (COM6)
[000002E8 - 000002EF] Communications Port (COM4)
[000002F0 - 000002F7] Communications Port (COM5)
[000002F8 - 000002FF] Communications Port (COM2)
[00000376 - 00000376] Secondary IDE Channel
[00000378 - 0000037F] Printer Port (LPT1)
[000003B0 - 000003BB] Intel(R) 82945G Express Chipset Family
[000003C0 - 000003DF] Intel(R) 82945G Express Chipset Family
[000003E8 - 000003EF] Communications Port (COM3)
[000003F6 - 000003F6] Primary IDE Channel
[000003F8 - 000003FF] Communications Port (COM1)
[00000400 - 0000041F] Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
[00000480 - 000004BF] Motherboard resources
[000004D0 - 000004D1] Motherboard resources
[00000800 - 0000087F] Motherboard resources
[00000A00 - 00000A0F] Motherboard resources
[00000A10 - 00000A1F] Motherboard resources
[00000A30 - 00000A3F] Motherboard resources
[00000A60 - 00000A6F] Motherboard resources
[00000A79 - 00000A79] ISAPNP Read Data Port
[00000D00 - 0000FFFF] PCI bus
[0000C000 - 0000CFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[0000C800 - 0000C8FF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
[0000D000 - 0000DFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[0000D800 - 0000D8FF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC #2
[0000E400 - 0000E41F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
[0000E480 - 0000E49F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
[0000E800 - 0000E81F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
[0000E880 - 0000E89F] Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
[0000EC00 - 0000EC07] Intel(R) 82945G Express Chipset Family
[0000FFA0 - 0000FFAF] Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0

Figure E-3: Input/Output (IO) (2 of 2)

E.3 Interrupt Request (IRQ)

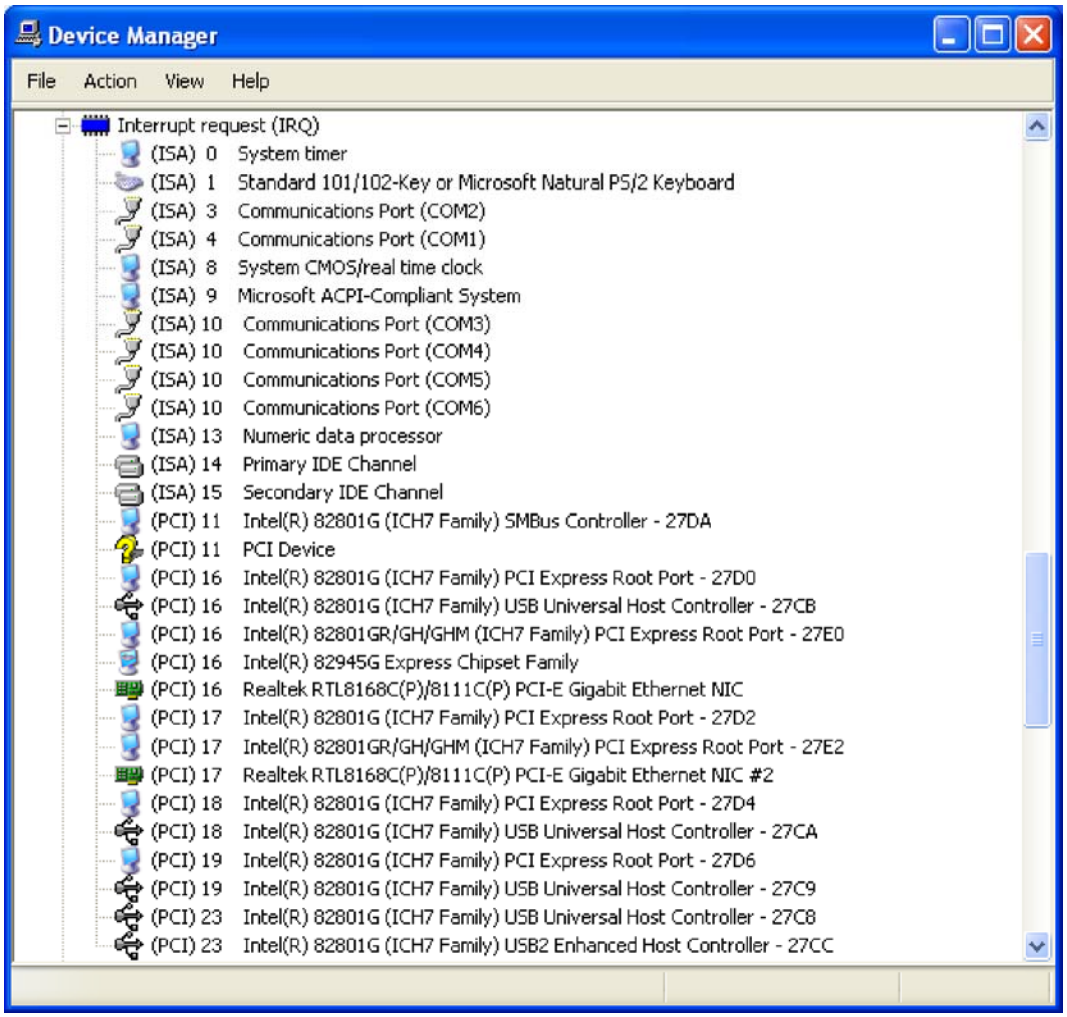
Device Manager
File Action View Help
Interrupt request (IRQ)
(ISA) 0 System timer
(ISA) 1 Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
(ISA) 3 Communications Port (COM2)
(ISA) 4 Communications Port (COM1)
(ISA) 8 System CMOS/real time clock
(ISA) 9 Microsoft ACPI-Compliant System
(ISA) 10 Communications Port (COM3)
(ISA) 10 Communications Port (COM4)
(ISA) 10 Communications Port (COM5)
(ISA) 10 Communications Port (COM6)
(ISA) 13 Numeric data processor
(ISA) 14 Primary IDE Channel
(ISA) 15 Secondary IDE Channel
(PCI) 11 Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA
(PCI) 11 PCI Device
(PCI) 16 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
(PCI) 16 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB
(PCI) 16 Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E0
(PCI) 16 Intel(R) 82945G Express Chipset Family
(PCI) 16 Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
(PCI) 17 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
(PCI) 17 Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E2
(PCI) 17 Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC #2
(PCI) 18 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D4
(PCI) 18 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA
(PCI) 19 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D6
(PCI) 19 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9
(PCI) 23 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8
(PCI) 23 Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

Figure E-4: Interrupt Request (IRQ)

E.4 Memory

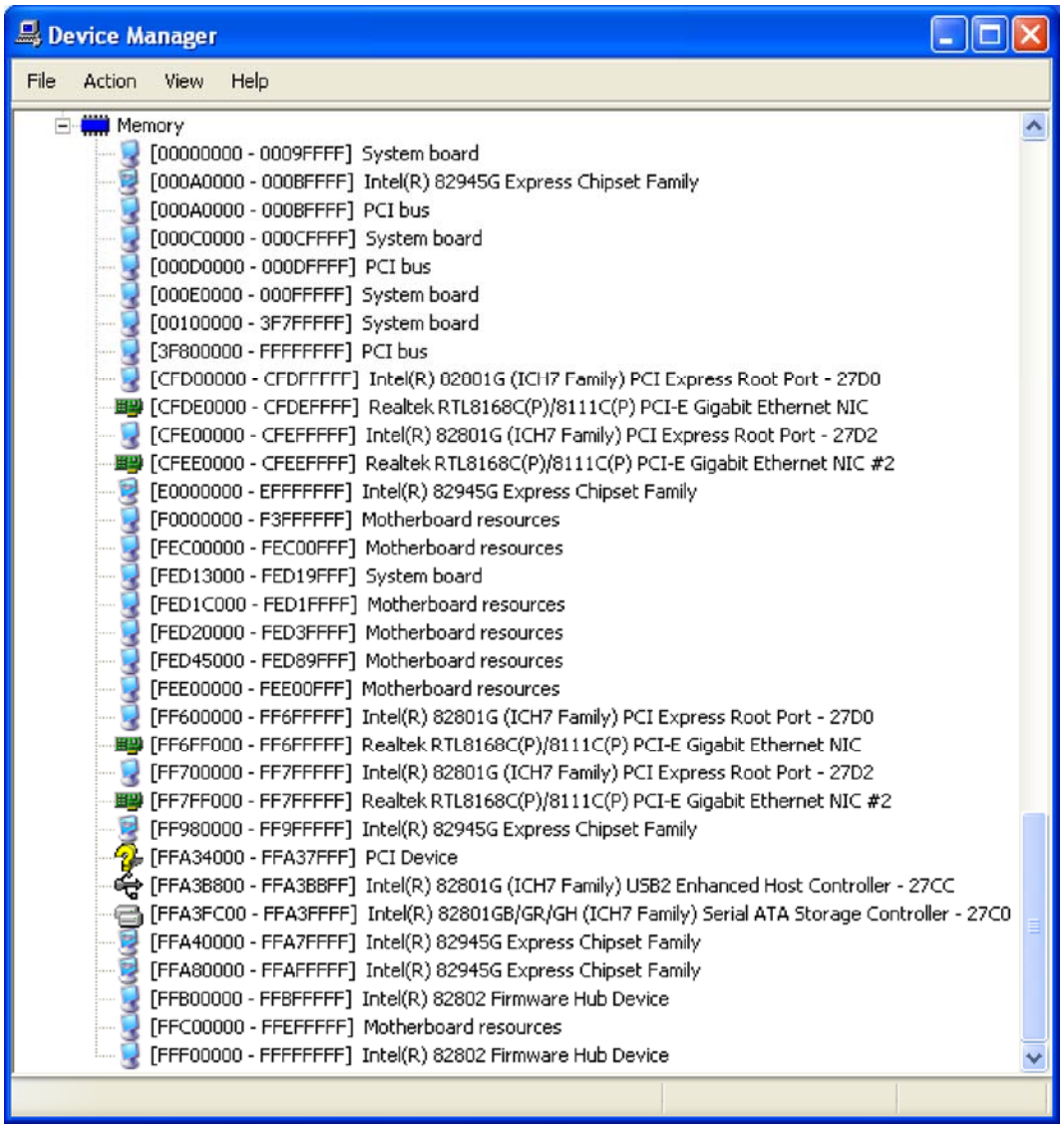
Device Manager
File Action View Help
Memory
[00000000 - 0009FFFF] System board
[000A0000 - 000BFFFF] Intel(R) 82945G Express Chipset Family
[000A0000 - 000BFFFF] PCI bus
[000C0000 - 000CFFFF] System board
[000D0000 - 000DFFFF] PCI bus
[000E0000 - 000FFFFF] System board
[00100000 - 3F7FFFFF] System board
[3F800000 - FFFFFFFF] PCI bus
[CFD00000 - CFDFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[CFDE0000 - CFDEFFFF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
[CFE00000 - CFEFFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[CFEE0000 - CFEEFFFF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC #2
[E0000000 - EFFFFFFF] Intel(R) 82945G Express Chipset Family
[F0000000 - F3FFFFFF] Motherboard resources
[FEC00000 - FEC00FFF] Motherboard resources
[FED13000 - FED19FFF] System board
[FED1C000 - FED1FFFF] Motherboard resources
[FED20000 - FED3FFFF] Motherboard resources
[FED45000 - FED89FFF] Motherboard resources
[FEE00000 - FEE00FFF] Motherboard resources
[FF600000 - FF6FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0
[FF6FF000 - FF6FFFFF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC
[FF700000 - FF7FFFFF] Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D2
[FF7FF000 - FF7FFFFF] Realtek RTL8168C(P)/8111C(P) PCI-E Gigabit Ethernet NIC #2
[FF980000 - FF9FFFFF] Intel(R) 82945G Express Chipset Family
[FFA34000 - FFA37FFF] PCI Device
[FFA3B800 - FFA3BBFF] Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC
[FFA3FC00 - FFA3FFFF] Intel(R) 82801GB/GR/GH (ICH7 Family) Serial ATA Storage Controller - 27C0
[FFA40000 - FFA7FFFF] Intel(R) 82945G Express Chipset Family
[FFA80000 - FFAFFFFF] Intel(R) 82945G Express Chipset Family
[FFB00000 - FFBFFFFF] Intel(R) 82802 Firmware Hub Device
[FFC00000 - FFEFFFFF] Motherboard resources
[FFF00000 - FFFFFFFF] Intel(R) 82802 Firmware Hub Device

Figure E-5: Memory

Appendix

F

Compatibility

NOTE:

The compatible items described here have been tested by the IEI R&D team and found to be compatible with the WIDS-51XX

F.1 Compatible Operating Systems

The following operating systems have been successfully run on the WIDS-51XX.

- MS-DOS 6.22
- Microsoft Windows XP (32-bit)
- Microsoft Windows 2000
- Red Hat 9.0

F.2 Compatible Processors

The following LGA775 processors have been successfully tested on the WIDS-51XX

CPU	FSB	Frequency	L2 Cache
Intel® Pentium 4	800 MHz	3.4 GHz	1 MB

F.3 Compatible Memory Modules

NOTE:

The memory modules listed below have been tested on the WIDS-51XX other memory modules that comply with the specifications may also work on the WIDS-51XX but have not been tested.

The following memory modules have been successfully tested on the WIDS-51XX.

Manufacturer	Model	Capacity	Speed	Type
Transcend	507303-0233	1.0 GB	667 MHz	DDR2

Appendix

G

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table G-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BX, 05          ;time-out value is 5 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BX, 0           ;
        INT      15H
;
; EXIT ;
```

Appendix

F

Hazardous Materials Disclosure

H.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

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